BEST AVAILABLE COPY

Chilton's

MAY 20, 1983

IRON AGE

THE MAGAZINE FOR METALWORKING MANAGEMENT

C 2150 - 2 5/25/83

DAVID M. RODERICK,
Chairman, U.S. Steel

"I am convinced of this: every ton of steel entering the United States today is being dumped. They (imports) contaminate the market. They poison the well."

The recession is "stretching companies on the rack and it falls unequally. There isn't any specific period of time where everybody [illegible]s off a cliff."

THOMAS C. GRAHAM,
Vice Chairman, U.S. Steel

ANNUAL STEEL OUTLOOK

[illegible]RATIONALIZING' THE FUTURE

MANUFACTURING SYSTEMS SERIES 40:
GROUP TECHNOLOGY—INDUSTRY'S POTENT WEAPON IN THE PRODUCTIVITY BATTLE

INDUSTRIAL DISTRIBUTION:
THE LINK BETWEEN THE OEM AND END USER

20814CON CRES*06 13
000000 0 000000000
CONGRESSIONAL INFO SERV
SRI ACQUISITIONS
4520 EAST WEST HWY 5 800
BETHESDA MD 20814
3DG

VOL. 226, NO. 15

IRON AGE

MAY 20, 1983

COVER STORY

25 **STEEL RATIONALIZES THE FUTURE**
A talk with steel's top men about the impact of imports, modernization and the labor-management relationship.

FEATURES

34 **STEEL AND NONFERROUS ARE LOOKING FOR THE UPTURN**
The lingering recession kept both steel and nonferrous metals producers mired in red ink during the first quarter.

41 **MAINTENANCE COULD SINK THE AUTOMATIC FACTORY**
A wrench bearer asking, "What's wrong?," won't help maintain hi-tech industries. What's needed are sound training programs.

49 **DISTRIBUTORS ARE BECOMING A KEY LINK IN THE MARKET**
More manufacturers are realizing that industrial distributors are the prime link with the end user and a source of market data.

61 **MMS SERIES 40: GROUP TECHNOLOGY REVITALIZED**
Increasingly, old-fashioned group technology is linked to new computers and computer-aided systems to maximize productivity.

73 **MMS PRODUCTS NEWSFRONT**
Vision 2002 Control Network, a major thrust in process control, features a user interface that unskilled programmers can use.

74 **GE PUMPS NEW LIFE INTO AN AGING FACTORY**
The most modern manufacturing methods are being used to upgrade the Erie plant's productivity and quality.

NEWSFRONTS

7 **EDITORIAL**
Is a break in the ranks all that bad?

13 **METALWORKING NEWSFRONT**
Two leading U.S. steel industry executives are displeased by U. S. Steel Corp.'s plans to import steel slabs from England.

21 **BUSINESS FINANCEFRONT**
The recession took its toll on compensation of many CEOs in 1982.

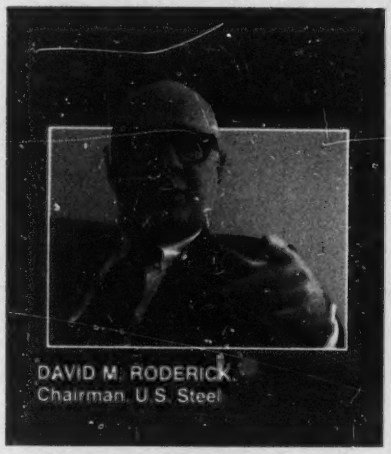
40 **YOU AND YOUR JOB**
A team of experts assesses the job market for this year's graduates.

56 **TECHFRONT**
GE's new software package is said to be helping revolutionalize computer-aided design of injection molds for plastic parts.

81 **PRODUCTS NEWSFRONT**
A robot control system speeds metal stamping operations.

82 **MATERIALS NEWSFRONT**
Steel industry sheet mills are running at a healthier pace.

88 **METALWORKING ORDER TRENDS**
Factories must soon rebuild inventories by issuing more orders.



DAVID M. RODERICK,
Chairman, U.S. Steel

DEPARTMENTS

8 EDITORIAL STAFF
11 LETTERS
78 BUSINESS STAFF
78 AD INDEX
79 MANAGEMENT SERVICE CARD
83 P&P DATA 5/9
84 FERROUS SCRAP 5/9
86 CLEARING HOUSE

NEXT ISSUE

Deregulation in America: Who wants it and who doesn't

IRON AGE (ISSN 0164-5137) is published 36 times a year with a frequency of every 10 days appearing on a Monday-Wednesday-Friday cycle of every month by CHILTON COMPANY, Chilton Way, Radnor, PA 19089. Chilton Co. is a division of American Broadcasting Companies, Inc., New York, N.Y. Second Class Postage Paid at Wayne, PA 19087 and additional mailing offices. IRON AGE is sent on a controlled free basis to qualified managers in U.S. metalworking companies. Non-metalworking companies, services, government, institutions, schools and colleges, $55 one year. Canada, $55 year. Foreign, $65 one year. Single copies, $2.50. Cable Chilton, Philadelphia.
Send address changes to IRON AGE, P.O. Box 2040, Radnor, PA 19089

STEEL, NONFERROUS ARE LOOKING FOR AN UPTURN

The lingering recession erased metal industry profits in the first quarter.

BY GEORGE J. MCMANUS AND ROBERT J. REGAN

Steel

The first quarter of 1983 was another disaster for steel mills.

The combined loss of the seven largest mills was nearly $600 million. That compared with a combined loss of $31 million in the first quarter of 1982.

Part of the profit decline could be explained by a drop in steel shipments—from 17 million tons in the first quarter of 1982 to around 15 million tons in the first quarter of this year.

However, the 13 pct shipping slide produced a 27 pct decline in the dollar sales of the seven companies. Because of diversification, steel shipments and dollars do not necessarily go together.

In this case, however, the gap between tonnage and dollar changes is not misleading. Price deterioration was a major factor in the profit deterioration.

Out of 21 steel companies checked, only four made money in the first quarter. Carpenter Technology Corp., which lost money in 1982 for the first time since the 1930s, bounced back to a $7.2 million profit in the first quarter of the calendar year.

Nucor Corp., Laclede Steel Co. and Interlake Inc., were profitable in the first quarter.

United States Steel Corp. had a net loss of $118 million in the first quarter. This reflected a drop in the operating income of Marathon Oil from $211 million in the first quarter of 1982 to $3 million in the first quarter of 1983. U. S. Steel expects the stabilizing of oil prices to bring better margins for Marathon in subsequent periods.

The steel segment of U. S. Steel had an operating loss of $232 million in the first quarter. That was down from a loss of $368 million in the fourth quarter of 1982. Wage concessions under the new labor contract began to take effect in March.

Bethlehem Steel Corp. lost $175 million in the first quarter compared to $66.7 million in the first quarter of 1982. Bethlehem's steel segment had an operating loss of $96 million in the first quarter. Despite this, the company was able to increase cash $46 million in the quarter.

Armco Inc., which made money in early 1982, lost $128 million in the first quarter of 1983. Armco's operating loss was down from the fourth quarter of 1982. The company's carbon steel business had the biggest deficit in the 1983 quarter, but there were also losses in financial services and oil field equipment. Specialty steels were profitable.

The net loss of National Steel Corp. was trimmed to $35.4 million in the first quarter, down from $40 million in the first quarter of 1982. The operating loss of National's steel business was $29 million, down from $72 million in the first quarter of 1982. National made money on aluminum and other non-steel businesses.

LTV Corp. had an operating loss of $87 million on steel in the first quarter of 1983. LTV's net loss was $77 million, down from a profit of $20 million in the first quarter of 1982.

Republic Steel Corp. had a net loss of $34 million and an operating loss of $51 million.

Among the seven largest companies, the $19.9 million net loss of Inland Steel Co. was the smallest. With its strategic location, Inland's shipments were down only 2 pct in the first quarter from the first quarter of 1982. The company's operations reached the break-even point in March.

Inland noted that changes in vacation and other fringe benefits improved results by 21¢ a share in the first quarter. In the second quarter, all the large steel companies will be getting the full benefit of wage cuts that took effect March 1.

There will also be higher volume. Shipments will go from a little over 15 million tons in the first quarter to something over 18 million tons in the second quarter.

The selective market recovery has hit individual mills differently, however. Sheet producers were operating around 70 pct of capacity by the end of the first quarter. Seamless pipe production was down around 20 pct. Plate and structural mills were probably running at no more than 40 pct.

The industry as a whole operated at 50 pct in the first quarter. By the end of April, operations were up to nearly 60 pct of capacity.

Laclede Steel, which makes bar and rod products, had an impressive comeback, going from a loss of $3 million in the first quarter of 1982 to a profit of $1.36 million in the 1983 quarter.

"At present, the industry is operating at approximately 60 pct of capacity," said John B. McKinney, president. "Laclede however, is operating at close to 80 pct . . ." Mr. McKinney attributed this high level "to the versatility of our finishing mills and a continuing, intensive sales effort."

Nonferrous

The nonferrous metals industries weren't exactly celebrating the end of the recession during the first quarter of 1983.

Early signs of recovery, like a better tone to some metal prices, lower interest rates, improvement in the housing sector and other faint glimmerings, were more than offset by the hangovers from a wretched 1982.

Prices for copper and aluminum have shown varying degrees of improvement since late in the first quarter, as have free market quotations for nickel. But there still is no great rush by fabricators to rebuild depleted inventories, beyond some nibbling here and there to build up a little insurance against higher prices and the possibility of work stoppages when major wage contracts expire over the next several weeks.

Producer stocks of aluminum and copper, although in a downtrend, still are plentiful enough worldwide to assuage consumers' anxieties, however.

The U.S. copper producers, who had put the brakes on production sharply during most of 1982, managed to nudge their prices higher during the first quarter. The uptrend has continued into the current period, despite an early settlement on a new wage pact by Kennecott Copper Corp., a major producer. The producers' price structure during the first quarter was bedeviled by a persistent rise in Comex and London Metal Exchange warehouse stocks. But the gains, marked after news of the Kennecott settlement, have been interpreted as recognition of some underlying strength that could become more ap-

Steel: Off to a Slow Start

Millions of Dollars		Earnings			Sales		
	E/S Pct	1st Qtr. '83	1st Qtr. '82	Pct Change	1st Qtr. '83	1st Qtr. '82	Pct Change
USS	—	(118.00)	80.00	—	3,860.00	5,003.00	−23.0
Bethlehem	—	(175.20)	(66.70)	—	1,119.30	1,564.80	−28.0
Armco	—	(128.40)	17.70	—	987.90	1,648.60	−40.0
LTV	—	(77.20)	20.30	—	898.90	1,591.40	−44.0
National	—	(35.40)	(40.23)	—	777.66	815.53	−4.6
Inland	—	(19.99)	(18.97)	—	695.55	763.42	−8.9
Republic	—	(34.80)	(18.80)	—	573.50	880.40	−35.0
Total	—	(588.99)	(26.70)	—	8,912.81	12,267.15	−27.0
Cyclops	—	(2.49)	(4.33)	—	223.15	201.57	+11.0
Interlake	0.4	0.88	2.80	−69	197.90	205.70	−3.8
Wheel.-Pgh.	—	(23.88)	13.64	—	172.72	216.67	−20.0
Kaiser	—	(9.90)	15.90	—	134.30	217.60	−38.0
Nucor	2.9	3.50	4.50	−22	119.70	133.10	−10.0
Carpenter	6.6	7.28	9.77	−25	109.86	125.48	−12.0
Lukens	—	(4.47)	0.96	—	81.22	87.35	−7.0
Copperweld	—	(5.20)	3.28	—	72.77	135.72	−46.0
Quanex	—	(4.26)	6.93	—	61.92	120.71	−49.0
CF&I	—	(17.86)	4.79	—	58.51	144.19	−59.0
Florida	—	(1.15)	(1.70)	—	58.04	63.31	−8.3
Laclede	—	1.37	(3.17)	—	46.04	53.99	−15.0
Eastmet	—	(2.52)	(3.70)	—	40.93	49.30	−17.0
Phoenix	—	(5.46)	4.30	—	27.69	51.11	−46.0

Nonferrous: Few in the Plus Column

Millions of Dollars	Earnings			Sales and Other Revenues		
	1st Qtr. '83	1st Qtr. '82	Pct Change	1st Qtr. '83	1st Qtr. '82	Pct Change
Alcan	(12.0)	12.0	—	1,245.0	1,236.0	+ 0.7
Alcoa	(14.3)	43.8	—	1,142.2	1,205.8	− 5.3
Amax	(48.7)	(5.8)	—	612.7	736.2	−16.8
Asarco	16.2	(1.4)	—	352.7	353.3	− 0.2
Cominco	(19.0)	(15.0)	—	264.7	265.3	− 0.2
Engelhard	16.2	14.3	+13.6	611.4	435.9	+40.3
Freeport McMoran	21.1	26.5	−20.4	204.2	194.9	+ 4.8
Homestake Mining	12.5	2.4	+418.7	67.7	52.7	+28.5
Inco	(76.9)	(37.2)	—	286.2	397.7	−28.0
Kaiser Aluminum	(28.8)	(24.9)	—	644.4	766.3	−15.9
Martin Marietta	13.8	15.8	−12.7	801.9	784.5	+ 2.2
Newmont Mining	18.8	11.8	+59.3	155.7	191.9	−18.9
Noranda Mines	(7.3)	(18.3)	—	677.0	735.0	− 7.9
Olin	22.5	22.0	+2.3	473.1	499.7	− 5.3
Oregon Metallurgical	0.05	4.2	−98.8	7.1	19.5	−63.6
Phelps Dodge	(3.9)	(19.1)	—	246.0	278.3	−11.6
Revere	(0.9)	(7.8)	—	121.5	152.9	−20.5
Reynolds	(52.4)	13.6	—	746.9	749.0	− 0.2
Sherritt Gordon	2.5	0.5	+400.0	67.7	78.9	−14.2
Vulcan Materials	(0.03)	9.8	—	154.6	164.3	− 5.9

( ) denotes loss

Alcoa: Net for 1982 period includes $19.9 million extraordinary gain from exchange of stock for debentures. **Asarco, Inc.:** Results for 1983 period include a pre-tax credit of $14.7 million for foreign currency translation adjustments compared with $15.8 million for the 1982 period. Results for the 1982 period also include pre-tax income of $7.4 million from sale of rights to purchase common stock of M.I.M. Holdings, Ltd. **Cominco Ltd.:** Canadian funds. **Homestake Mining Co.:** Net for the 1983 period includes a $5.8 million write-off of investment in a uranium mine. **Noranda Mines Ltd.:** Canadian funds. **Reynolds Metals Co.:** Net for the 1982 period includes $26.8 million credit for cumulative effect on prior years of an accounting change. Sales for 1982 period are restated. **Sherritt Gordon Mines:** Canadian funds.

parent as the recovery continues.

Asarco, Inc. credited its move back into the black in the first quarter to cost-cutting and productivity-improving measures taken last year, as well as to better copper and silver prices. Phelps Dodge Corp. said it would have been profitable except that losses from the uranium division and interest expense and other corporate charges offset small operating profits from the primary metals and manufacturing divisions.

Amax, Inc., noted that depressed prices and weak demand for molybdenum, plus lower prices for primary aluminum, more than offset the benefits from higher silver and copper prices.

North America's four aluminum giants had an aggregate net loss of $107.5 million in the first quarter on a 4.5 pct drop in aggregate sales, to $3.78 billion. In the initial 1982 period, the quartet had aggregate net income of $44.5 million, including Kaiser Aluminum & Chemical Corp.'s $24.9 million loss. Aluminum Co. of America (Alcoa) said it was looking for a gradual, but steady recovery in key aluminum markets this year, but was reluctant to predict a return to profitability in the current period. The company said the incoming order rate had improved, but part of this was inventory rebuilding.

Alcan Aluminum, Ltd., said the improvement in ingot prices that developed earlier in the year should be reflected in second quarter results.

Reynolds Metals Co. said the first quarter pickup in order and shipment rates was not enough to counter the effects of low prices and continuing cost pressures. The company said there has been a real improvement in aluminum consumption, but it was difficult to determine how much of the increased shipping volume reflected hedge buying, normal inventory rebuilding and a better chew-up rate.

Kaiser Aluminum said the recent improvement in demand and prices won't return the company to profitable operations in the current quarter, but there will be considerable improvement in operating results.

Inco, Ltd., said it was not expecting profitable operations in the current period, but results "will be substantially better" than in the first quarter. The company said startup costs will be modest by comparison to the heavy shutdown costs experienced in the first quarter and higher nickel prices also will help. □

Reprints available while supply lasts. For single copy, circle No. 89 on inquiry card. Additional copies, $1.00 each, for articles up to 8 pages. Longer ones $2.00 each. Please include payment with orders of $10 or less. Quantity reprints available. For information, write: IRON AGE, Reader Service, Chilton Way, Radnor, Pa. 19089. Ask for reprint No. 4337.

the distributors, Mr. Gale says.

Machine tools, like so many other businesses, are evolving into part of a growing world market. Never again are we likely to know that time when machine tool building, or many other industries, was segmented along strict national boundaries.

By the same token, distributors also can sell flexible manufacturing systems and machining cells. "Not because machine tool distributors suddenly have become doctoral candidates in engineering," says Mr. Gale. "Machine tool distributors can sell flexible manufacturing systems because they are salesmen."

If the reward is sufficient, he says, distributors will assume the responsibility, learn the basics of the product, and sell whatever flexible manufacturing system the builder can devise.

"The way we look at it, manufacturers are marketing partners with their distributors. And in any partnership, two-way communication is a key ingredient for success," says Leonard A. Newblom, vice president and general manager, Power Transmission Sales Div., Dana Corp., Toledo, Ohio. "By mutually communicating their business and marketing objectives, the distributor and the manufacturer can work toward common goals, jointly assisting each other in developing specific markets.

As marketing partners, he says, the distributor and the manufacturer must jointly develop the marketing plan. Traditionally, the manufacturer gathered information at the user level and prepared the plan. But in recent years, more distributors have expanded their roles beyond selling—into marketing.

"The distributor is in the best position to gather this marketing information, because he is more intimately involved with the market on a day-to-day basis," says Mr. Newblom. "It's the distributor's job to know the territory—to understand his customers—and to determine how the end-user wants to be served. Then it becomes the manufacturer's job—and responsibility—to see that his company is oriented so that the end-user is best served."

Market information is vital to a manufacturer. It can help to improve current product design as well as open up new market segments, applications and other sales opportunities, the Dana executive says.

John Komives, executive secretary, Central States Industrial Distributors Association (CSIDA), Milwaukee, says many manufacturers now have skeleton sales forces. A regional manager handles from one to a dozen or more distributors in each of several states.

Besides selling, he says distributors offer guidance in terms of applications engineering. "The manufacturer can use an industrial distributor to expand the market share, because he has the product where it's needed, when it's needed. Because the distributor is in the front line, he is more quickly aware of the changing or developing needs in the market place as they evolve. He also has the people and the local entries into current and new markets and emerging markets. Therefore, the manufacturer's sales are multiplied by the distributor's efforts through the distributor sales force, Mr. Komives says.

"From a financial standpoint, the industrial distributor offers some distinct advantages and opportunities to the manufacturer," adds Mr. Magoni, of

For many years, the distributor suffered the old 'middleman bogey.'

Dana's Fluid Power Div. The distributor, he explains, takes title to the goods he sells to his customers and relieves the manufacturer of an important part of the risk. The manufacturer can concentrate more of his capital in improving his products and productivity rather than tying it up in inventory.

Also, the manufacturer doesn't have to become involved in the many thousands of accounts that buy the products nationwide. In many cases, it would be totally impractical for manufacturers to sell small quantities of products to individual customers over large geographic areas.

The distributor buys inventory and becomes the field inventory for both supplier and end user, says CSIDA's Mr. Komives. And because they are closer to the market, they are better able to forecast market needs.

Also, the distributor "obtains feedback information on products and feeds this back to the manufacturer in a much less expensive way than the manufacturer ever could," he says.

Further, the local distributor is "immobile." He's not looking to move up in some large corporation's hierarchy. He's part, permanently, of the community he sells in. "The purchasing agent or president of a company gets to know his distributor personally. The distributor gets very upset if something (product reliability, for example) disturbs that relationship," says Mr. Komives.

"Manufacturers can strengthen the marketing partnership by allowing some flexibility in their relationship," says Dana's Mr. Newblom.

Distributor-manufacturer relationships are unique. Each distributor has its own style of operation that works best for it and its customers. For example, some distributors want joint sales calls, others don't. Some want the manufacturer to take care of the price books and some don't. If the manufacturer can accommodate these differences, it can enhance the partnership substantially.

"The question of who in the marketing partnership sells the OEMs, the distributor or the manufacturer, is the one that has to be answered on a case-by-case basis. Ultimately, the answer has to be based on making sure the customer is taken care of in the best way.

"A decade or so ago, it was standard practice for technical products to be sold directly to OEMs by the manufacturer. This is no longer the case, and many distributors today have a high level of technical competence that just didn't exist years ago. Because of this increasing level of expertise among distributors, we have to look very closely at who sells the OEM in each of our distributor arrangements," explains Mr. Newblom.

Distribution is also becoming more and more professional. Texas A&M is the most well known of those few schools that offer a degree in industrial distribution. "We started this curriculum 25 years ago. It's the fastest growing area in the college of engineering," says Associate Professor Gerald A. Stone.

Texas A&M offers a bachelor of science in industrial distribution, a BSID, or "ID" as it is known on campus.

Why is it the fastest growing major in the college? "Because they are so highly desirable in both manufacturing as well as distribution," says Prof. Stone.

One of the largest industrial distributors in the U.S. is Bearings, Inc., Cleveland. Says Thomas L. Bradley, its vice president, sales and marketing, "We talk in the vernacular of the industry. We look at our salesmen as problem solvers. We're dedicated to getting our customers out of the inventory business.

"The role of distribution, as dictated by the requirements of a cost-conscious industry in transition, is swiftly being rewritten. Proximity of inventory to the user's place of business has new significance," Mr. Bradley adds. "Every manufacturer is faced with the pressing need to optimally control stores, production and in-process parts. Reliability of their suppliers, both financially and in performance, is of prime importance."

For many years, the distributor suffered the old "middleman bogey." He

had to pass through unproductive toll gates set up by processors, warehousers and advertisers, a Shylock who extracted his pound of flesh without providing a commensurate service. And perhaps this was true to some extent, for the distributor of 50 or 60 years ago lacked the sophistication and the technical know-how to provide the many services he makes available today, Mr. Bradley explains.

"Still, he was a necessary, even vital cog, in the growth of industrial America, contributing to the mass production society that enabled the American consumer to obtain goods at prices far better than their European counterparts. He could consolidate the smaller purchases of a number of his customers into a larger order that would enable the manufacturer to produce at a lower unit cost. He was local, right there in your town or neighborhood with product on the shelf ready for your immediate use. And if it cost a little more, what difference. It was there when you needed it," the Bearings, Inc., executive says.

What about the costs? Where is the value-added that distributors claim they offer? Mr. Bradley says there are four principle contributions a distributor makes in reducing the consumer's cost: Investment, service, training and know-how.

Investment means having the product available when the customer needs it.

Getting the product to the customer when he wants it is service.

"A good distributor reacts to his customers' needs," says Mr. Bradley. "He pulls out all stops to respond to an emergency, a breakdown. Whatever it takes. He delivers it to the plant in the company truck, a company car, a personal car or whatever is available. If he doesn't have it, he gets on the phone, checks his other warehouse or the manufacturer. He gets it on a bus or on a plane. He gets up in the middle of the night to handle those crises that occur in the wee hours so that the morning shift can resume production."

The distributor also passes on the technical skills, the training aspect. A good distributor conducts training seminars about the product in the consumer's plant or at a central meeting.

"He holds open houses in his store to display the variety of his products. He keeps the customer supplied with the most current factory catalogues, literature and price lists. He advises of pending price changes. He introduces new products. He evaluates new products and maintains a close rapport with the manufacturer. He participates in distributor associations to improve the manufacturer's products and services

Distributors—High Sales Volumes, Less Labor

Workforce (Number of Employees)		All	Small	Medium	Large
Total Workforce		42.6	13.6	29.0	11.3
Warehouse & delivery	Men	7.5	2.2	5.3	18.5
	Women	.6	.1	.2	1.9
Outside salesmen	Men	10.0	3.2	6.0	26.0
	Women	.2	.1	.1	.7
Inside salesmen	Men	5.5	1.8	4.1	13.1
	Women	.8	.3	.8	2.2
Office employees	Men	3.2	1.1	2.0	8.0
	Women	7.9	1.8	5.3	20.6
Executive & Management	Men	4.2	1.7	3.2	9.6
	Women	.5	.2	.3	1.0
Others (including service & Mfg.)	Men	2.1	1.1	1.6	4.5
	Women	.1	.1	.1	.2
Sales Volume per Employee		$154,973	$123,725	$150,457	$151,716

Averages are based on reporting companies only

	All	Small	Medium	Large
Machine Tools	$1,414,940	$365,300	$971,552	$2,587,448
Wholesale Hardware	$2,788,993	$ 60,000	$564,887	$6,579,986
Welding Supplies	$ 265,871	$ 16,748	$151,934	$ 434,708
Metals Distribution	$ 660,069	$ 92,000	$ 69,000	$1,050,282
Plumbing, Heating & Air Conditioning	$ 837,715	$ 11,569	$273,332	$1,539,788
Construction Equipment	$ 32,794	$ 55,000	$ 36,500	$ 24,331
Electrical Wholesale	$ 334,034	—	$600,000	$ 245,378
Sporting Goods	$ 27,916	—	$ 20,000	$ 31,308
Automotive	$1,077,501	$118,950	$1,449,000	$1,108,293
Oil Field Supplies	$ 552,727	$ 18,000	—	$ 757,750
Aviation Supplies	$ 20,605	—	—	$ 26,492
Other	$1,478,342	$435,125	$605,885	$2,791,442

Size definitions: Small: Less than $2,500,000 in annual sales. Medium: $2,500,000 to $7,500,000 in annual sales. Large: More than $7,500,000 in annual sales.

Source: National Industrial Distributors Association; Southern Industrial Distributors Association.

Advertorial

A Message from Herman Dykema, Exec. Vice President, Startrite Incorporated

Startrite markets 100% through distributors. Distribution is on a limited and selective basis, primarily NIDA/SIDA and a number of AMTDA members.

Startrite offers its distributors the most experienced and knowledgeable field sales organizaton in the metal sawing industry.

Startrite from its all new facility in Kalamazoo, Michigan offers the finest and broadest range of metal sawing machines.

Startrite catalog H-83 describes 16 pages of Horizontal band cut-off machines consisting of 10 models ranging in capacity from 7" to 12.8".

Startrite catalog V-83 illustrates 17 models of Vertical bandsaw machines with 14" to 36" throats offering a vast assortment of features and options seldom found in other machines.

Startrite catalog C-82 contains 13 models of slow speed Circular Cold Saws for ferrous cutting with 10" to 14" diameter blades.

Startrite catalog HS-83 introduces a complete new line of large High Speed Horizontal band cut-off machines consisting of 12 models having 10" to 26" capacities both automatic and semi-automatic.

Startrite now introduces a new low-priced automatic (illustrated on the adjoining page) a completely self contained unit with a 12" x 14" capacity described in catalog supplement H-83.

Startrite in July will introduce 3 new models of High Speed Circular Cold Saws for non-ferrous consisting of a manual, semi-automatic, and completely automatic machine. CN supplement to catalog C-82 will carry all the information.

Startrite will also introduce a new Automatic Slow Speed Circular Cold Saw for ferrous cutting in a CF supplement to catalog C-82.

and combats price increases," Mr. Bradley explains.

And the distributor gives support and guidance in all phases of business. That's the know-how.

Good distributors provide an array of services. They conduct surveys to reduce inventory surpluses. They offer various computer services, renegotiation reports, composite corporate purchase analysis and automated billing systems. They can solve in-plant problems through their technical awareness or by relating success stories of product applications in similar industries. They demonstrate products and give the customer an objective opinion on product selection, Mr. Bradley says.

There's something for the manufacturer, too. They offer him visibility, says Mr. Bradley, certainly a more comprehensive sales force and proximity to the user. In addition, he says, they can also provide in-depth knowledge of the customer, ranging from his financial status to a first-hand community relationship with his employees.

The best thing a manufacturer can do for distributors is to give him quality and technical service. "Quality to a dis-

Advertorial

H-K Distributors See Blue in Metric Fastener Market

Holo-Krome, a leading American fastener manufacturer and its 350 distributors, are out to increase their share of the growing domestic metric market.

To do this, H-K distributors will begin stocking a full line of metric fasteners manufactured with a Holo-Blue™ finish, and packaged in smaller unit quantities.

Holo-Krome's strategy is twofold. First, metric threads are similar in appearance to those of the inch. Color identification will help eliminate cases of inch fasteners being put into metric holes or being mixed in stock rooms. Secondly, departure from the standard higher quantity boxes to smaller box quantities more closely allied to MRO requirements ultimately helps our distributors gain a larger share of the user market and be of better service to their customers.

The market is growing and so is the need. Demand for metrics, which began domestically some 15 years ago, now touches virtually all manufacturing industries. Moreover, with the influx of foreign machinery, more and more maintenance/repair personnel are faced with confusion in carrying out their normal repair activities.

Our Holo-Blue finish offers the user additional product advantages. First, it provides greatly improved corrosion resistance and extended shelf life. Secondly, our product line is a high strength metric fastener readily available—12.9. One inventory can now be used throughout a customer's plant to service virtually all metric fastener requirements.

Ray Van Horn
General Sales Manager
The Holo-Krome Company

To date we have already initiated a concentrated user ad campaign in targeted maintenance and purchasing publications. We are also providing our 350 distributors with a comprehensive promotional package that includes direct mailers, sample kits and qualified advertising leads.

In anticipating demand, our objective is to have distributor stocks in place within 90 days following the TIS Convention. We realize that metric requirements consist mainly of low-volume, maintenance and repairs. Packaging fewer fasteners to a box, will reduce the need for distributors to break boxes. This will keep distributor investment at a minimum.

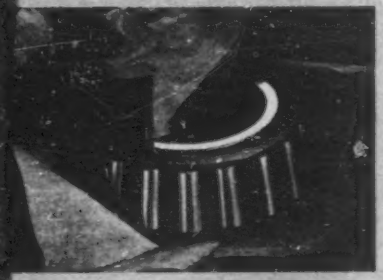
Distributors have stressed the need for such consideration. It is difficult for a distributor to remain profitable pulling less than $5.00 worth of merchandise off the shelf. Holo-Krome has therefore determined box quantities in terms of a single box costing from $5 to $10. The result? Fewer broken boxes and lower distributor investment.

While color coding isn't exactly a new strategy, it may be just what the market requires to service the imported metric machines and new metric designs.

Invisible Rust-Proofing

...o Oils,
...o Sprays!

...patented rust-inhibiting chemical ...mpregnated into kraft paper bags, sheets ...nd shrouds protects parts from rust, ...arnish, or corrosion for as long as 10 ...ears.



...Manufacturers use Daubert VCI Papers to ...protect their parts in process, in storage, ...nd in shipment. And since they don't ...have to coat them, they don't have to ...clean them. Which makes Daubert VCI ...Papers a quick and easy way to increase ...productivity. For themselves. And for ...their customers. Write for free samples.

DAUBERT
COATED PRODUCTS, INC.
1200 Jorie Blvd.
Oak Brook, IL 60521 312-986-4600
For information, Circle 132

tributor means the right thing at the right time. The marriage, uneasy as it may be, is going to stay with us for a long time. The old European system was to sell direct. But those countries are relatively small places. The size of the United States means we need industrial distributors," says Don Manning, Parker Hannifin's vice chairman.

And, perhaps, because of the recession, manufacturers are looking for distributors more than ever. They've cut their own field sales forces to the bone and distributors are finding inquiries higher than ever.

"I get a letter every day," says Robert Bokram, president, B-H Tool & Supply Co., Detroit. "They can't afford to get their product out to the country themselves.

"The adversary relationship between manufacturers and distributors is changing. World competitive forces are doing this. It's a buyers' market today.

"Tough times and technology are changing distribution, says B-H Tool & Supply's president.

"The hottest thing now," Mr. Bokram says, "is systems contracts and onsite ordering using CRTs and computers.

"As for CRTs, computers and high tech in general, paperless purchasing is the trend. Eventually, even the packing slip will go," he predicts.

Fifty pct of NIDA members, for example, are now computerized to some degree.

Another trend, he adds, is to handle two lines of any given item—the "quality" line and the "price" line. We are becoming a discount society even in industry, he says.

Still, the real power of the independent distributor, the real value-added is in the entrepreneur's long-term profit motive. Again, he sells.

"Every industrial distributor has a sales force, whatever the size of the sales force, that is an expansion of the manufacturer's sales force," adds Terry Poltorek, president, House of Plastics, Inc., Cleveland.

The industrial distributor will do whatever is necessary to sell the products in inventory. "Industrial distributors are always interested in finding new products which can be manufactured from the material they are selling or distributing," he adds, "so the additional sales people is one way that manufacturers expand market share."

Another important factor is literature. Industrial distributors carry a tremendous amount of literature, both marketing literature as well as technical data, on all the materials which they sell, says Mr. Poltorek.

Robert Olsen, chairman and president, Screw Machine Supply Co., Chicago, says one advantage of using a distributor is the reduced inventory of the manufacturer and end-user. Unfortunately, Mr. Olsen says, there's been a trend in recent years to concentrate less on the quality, in some cases, of the manufacturer's own people. "The people servicing us, in some cases, has been disappointing and their rapid turnover has also been a problem," he says.

Historically, manufacturers have used only well-trained people in the field and they've been in place for years. They were always very people oriented. Now, distributors are seeing disappointing manufacturers reps, he adds. "Our older people are training the manufacturers' people now," Mr. Olsen says.

"They're cutting back on qualified people because of the economy. Or, he continues, it may be a change in the nature of top management in manufacturing, from plant or sales oriented people to financial people.

"I would like manufacturers to make better use of us," he says. "We're so much more capable now in electronics and systems. We only need access."

"As the United States moves from an industrial to a service based economy, it's companies like ours that must demonstrate effective use of the hi-tech resources available today," adds J. Michael Fuchs, president, Fuchs Machinery & Supply, Inc., Omaha, Neb.

"We also find ourselves marketing products that are very technical and complex in nature, and we now have to develop the product specialists to convey these new ideas to the metalworking plants in our territory.

"It's our job as distributors to convince our manufacturers to utilize the latest in machine tools, robotics and hi-tech tooling so that we as a country can continue to compete with other countries and their lower labor rates," says Mr. Fuchs.

"We are the marketing experts," says Mr. Fuchs. "The Japanese found that out early."

The distribution business has indeed changed over the years. It has become quite a sophisticated profession.

But, even with CRTs and computers and systems, much of distribution will remain personal, notes a dean of distribution, consultant Charles P. Klein, president of Cannon Enterprises, Wyoming, Ohio.

"You have to know the people. They gotta like you and know you have integrity," insists Mr. Klein. □

Reprints available while supply lasts. For single copy, circle No. 91 on inquiry card. Additional copies, $1.00 each, for articles up to 8 pages. Longer ones $2.00 each. Please include payment with orders of $10 or less. Quantity reprints available. For information, write: IRON AGE, Reader Service, Chilton Way, Radnor, Pa. 19089. Ask for reprint No. 4339.

GROUP TECHNOLOGY: REVITALIZED BY COMPUTER POWER

Thanks to new computer-aided systems, group technology is making a comeback.

BY ROBERT E. HARVEY

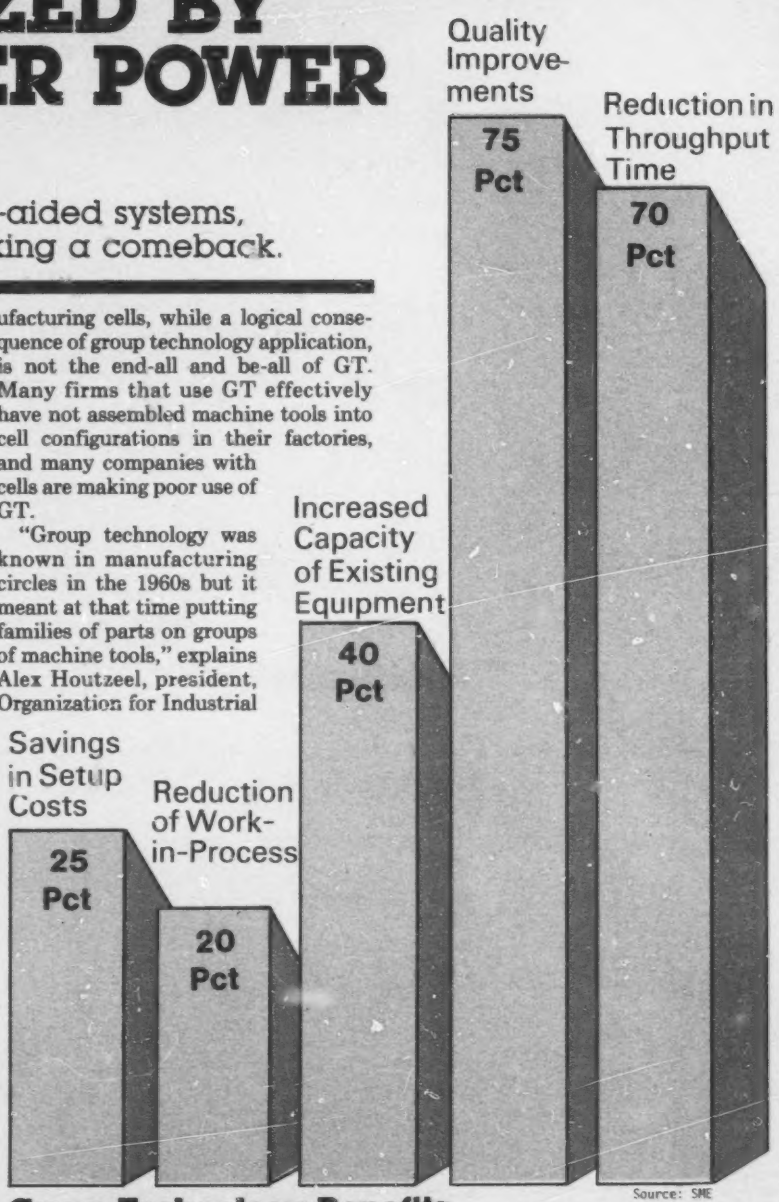
Group technology (GT) is an old concept—some say several thousand years old. Even in its modern form GT has been practiced as far back as World War II.

For all its longevity, group technology has not received the acclaim that its pioneers envisioned for it. Today, for example, it is being pushed from the spotlight by new concepts of factory automation and management. Attendance at seminars about robots, computers, CAD/CAM (computer-aided design/computer-aided manufacturing), CIM (computer-integrated manufacturing), CAPP (computer-aided process planning) and the like is, unlike GT conference participation, on the upswing.

But the fact is that all these advanced systems and technologies can benefit from the methodologies of GT. The invasion of the computer into nearly every area of factory management and operation has greatly increased the potential of GT to become a powerful organizational tool. As the need mounts to both rationalize the vast amount of manufacturing data spewing from computers and simplify the increasingly complex activities on the shop floor, GT will grow in importance. The Society of Manufacturing Engineers (which yearly sponsors a comprehensive seminar on group technology) forecasts that, by 1987 to 1990, some 50 pct of the major equipment manufacturers will have consciously applied GT.

Some misconceptions about GT must be aired out before GT wins an esteemed place in the hearts of U.S. manufacturers. First to be clarified is what GT is and what it is not. GT is not primarily a way of rearranging furniture. The formation of machinery into manufacturing cells, while a logical consequence of group technology application, is not the end-all and be-all of GT. Many firms that use GT effectively have not assembled machine tools into cell configurations in their factories, and many companies with cells are making poor use of GT.

"Group technology was known in manufacturing circles in the 1960s but it meant at that time putting families of parts on groups of machine tools," explains Alex Houtzeel, president, Organization for Industrial Research, Inc., Waltham, Mass. "The idea of ripping machine tools out of the shop floor and arranging them in groups scared a lot of people—and still does." The task of rearranging machinery was costly and risky; especially if a firm did not know if it would be making the same parts in the future.



Group Technology Benefits

Other people saw GT simply as a method of searching through a file cabinet for an engineering design.

However, GT is not a file or a machine tool arrangement system but a particular philosophical approach for solving manufacturing problems.

"Group technology can be defined as the bringing together of and organizing (grouping) of common concepts, princi-

ples, problems and tasks (technology) to improve productivity," according to a report given by Timothy J. Greene, professor at Virginia Polytechnic Institute, and Randall P. Sadowski, professor, Purdue University at a Society of Manufacturing Engineers' 1982 GT seminar in Chicago.

GT is finding the similarities within the product and process diversities of a company and exploiting these discoveries to improve operations.

What are the major benefits of knowing the similarities? According to Frederick B. Ingram, systems and procedures analyst with the Production Control Dept., Giddings & Lewis Electronics Co., Fond du Lac, Wis., the ability to class components based on common production or design attributes puts economies of scale within reach of batch processors. For example, a firm might discover that a group of parts, though shaped differently, can be machined on the same machine tools, using the same tooling and fixturing. Now larger batches can be run on the equipment.

"Also, the introduction of a brand new part into batch manufacturing is expensive," reports Mr. Ingram. "But if that new part somewhat resembles a previously designed part, introduction costs can be cut considerably."

Finding similarities between past design and manufacturing experience and future parts is another function of GT. If an experienced employee retires, some 25 years of knowledge goes along with him. Group technology can access some of that information through a classification and coding system. Classification and coding is a system of arrangement, much like a zip code or the library classification system.

"Classification and coding is the glue of group technology. It is the central focal point," says Glen C. Dunlap, director, systems design, Garrett Turbine Engine Co., Phoenix, Ariz. "Without it you have nothing."

The language used in classification and coding must be broad enough to cover all parts and all possible future parts (for the next 20 or so years). It must also be wide enough to describe all information desired on each particular part. Most important, the code must be able to group parts with similar traits.

Classification of parts is done according to their attributes. Attributes can include geometric shapes, manufacturing features and mechanical properties. Attributes can describe functional traits as well; for example, how a part relates to its end product.

"The basic assumption underlying the classification of parts by their shape or function is that similar parts should have similar costs, methods of manufacture, lead times, tooling requirements, processing flows and so on," outlines Mr. Ingram.

Groups of similar parts are called part families. All parts in a family have similar attributes. When parts have been classified and arranged into families, the information can be used most effectively if it is loaded into a computer's data base.

"Classification and coding is an intelligent way to go into a data base and search for information," explains Alex Houtzeel of the Organization for Industrial Research, Inc. "What group technology in my vision really looks like is a methodology to take by code number a whole family of parts out of the data base, look at the parts critically, and sift through the data with a whole set of sophisticated computer programs in order to discover which parts should really be designed in the same way or manufactured in the same way. Once this is done, you are ready for computer-aided process planning and all that sort of thing."

GT benefits a number of people. It benefits the design engineer by giving him easy access to previously designed parts that are similar to the part he is designing now. By studying part family histories, he no longer has to redesign the wheel. He can locate and eliminate duplicate designs. And he can reduce the size of the part family by standardizing: by designing one part that can be substituted for five or ten very similar parts.

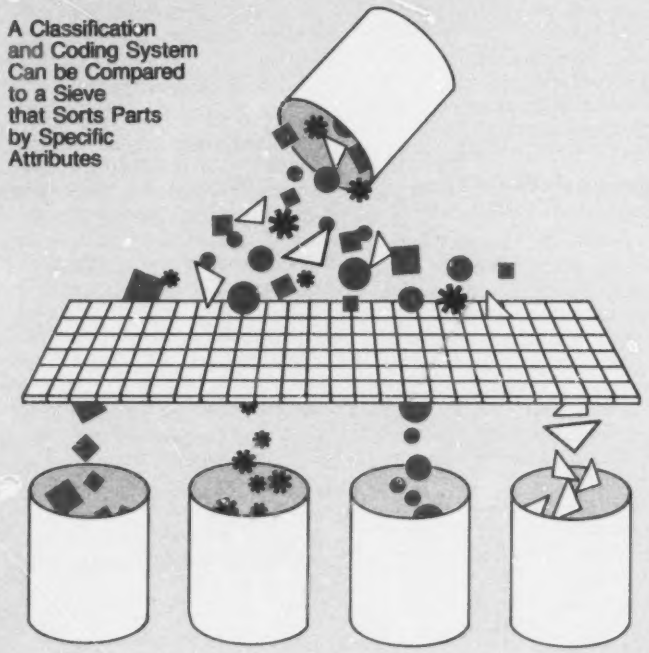
GT assists the process planner and the manufacturing engineer. With standardized parts, they now can set up standardized routings through the shop for those parts. By simplifying routings and better regulating the flow of parts, engineers can reduce tooling and fixturing costs, reduce set-up time, reduce throughput time, and generate easily retrievable process cost estimates.

Purchasing agents also are beginning to recognize the benefits of GT, for they are able to use leverage when shopping for large numbers of similar parts rather than small numbers of individual parts.

"At our facility, where engineering might use one family of parts and manufacturing might use a range of 20 part families, purchasing might use ranges of 100 families if what they want to do is get all pumps, for example, together at one crack. Now volume buying can be done for those 100 families," says Mr.

(Cont. on p. 69)

Classification and Coding System



Source: Organization for Industrial Research Inc.

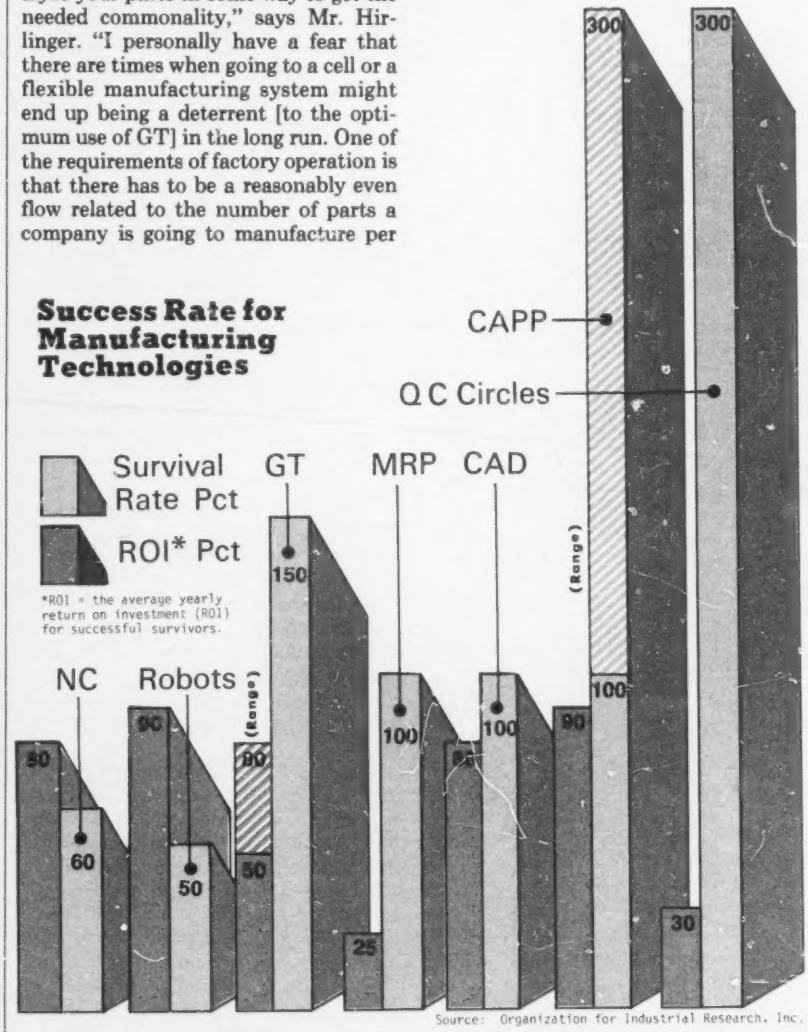
purposes not originally intended. Real problems can occur if the parts being made on a cell no longer fit into the particular restraints of that cell. Running parts from cell to cell defeats its purpose.

"If you are going to set up an efficient cell, the first thing you have to do is analyze your parts in some way to get the needed commonality," says Mr. Hirlinger. "I personally have a fear that there are times when going to a cell or a flexible manufacturing system might end up being a deterrent [to the optimum use of GT] in the long run. One of the requirements of factory operation is that there has to be a reasonably even flow related to the number of parts a company is going to manufacture per month. That flow is not always compatible with cellular operations."

Manufacturing cells should not be set up on impulse. 'But I need a place to put my new robot,' is not an adequate reason. Companies even should look closely at whether a comprehensive computerized GT should be implemented. The philosophy of GT is valuable, but its installation is often time-consuming and expensive.

The system often takes several years to implement, especially if a company sets up its own classification and coding system. Firms that develop their own GT systems cite the need to customize classification and coding to their particular product mix and requirements as the reason they did not purchase a standard software coding package or bring in a firm to install GT in turnkey fashion.

Success Rate for Manufacturing Technologies



Source: Organization for Industrial Research, Inc.

Other firms like Baker Packers, however, relied on outside assistance and are very satisfied with the results. "Why reinvent the wheel," comments a company spokesman.

Besides the time required to put in a GT system, the costs of rearranging machinery to accommodate families of parts and the expense of modifying old design files often are high. Additional staff also might be needed.

Once installed, other problems can arise. As mentioned previously, machines set up to turn out only one family of parts may be underutilized at times. Also, cells might have to be rearranged eventually. In addition, a cell is less flexible than a functional layout when it comes to accommodating unexpected change. And if product obsolescence is slow, cost savings for the design department may be small.

In the abstract, the GT philosophy has value for everyone. How GT is applied in the concrete is another matter. Comprehensive on-going GT systems are not for everyone. Some 20 to 50 pct of the firms that have tried GT have encountered serious problems. Firms that make only several hundred parts, for example, probably have little need for computerized coding.

One firm that produced some 20,000 parts turned to GT. Using classification and coding, and the optimization and standardization of design, that number was reduced to below 700. GT certainly was a benefit to the firm, but now with only about 700 parts to worry about, the decision was made to discontinue using GT until a proliferation of parts makes operations unmanageable again. The point is that GT is a problem-solving tool and before a firm decides to use GT it must painstakingly uncover what problems must be solved and how GT can best be used.

The shop is the ultimate proving ground for new manufacturing techniques and philosophies. It is also a place of potential friction between conflicting systems. Just as the problem of integrating material and geometric parts languages has yet to be solved; so too, the question of how to best interrelate material requirements planning and group technology on the shop floor is still waiting for an answer.

Material requirements planning started out as simply an order launching system, relates Mr. Houtzeel. "But in recent years it has evolved into a full-fledged manufacturing information system involving production requirements and closed-loop feedback from the shop floor describing what is really happening in manufacturing operations. It has essentially evolved into a manufacturing resource planning system (sometimes called MRP II)."

"I am not sure that there are very many people who have addressed that problem [of linking GT and MRP] adequately," explains Dr. Dunlap. "At Garrett we start with a customer sales order. We then develop an assembly schedule. That schedule is then fed into our MRP system. Out of the MRP system we then generate input to what we call an order release system."

That system either places a purchase order with an outside company for a

BEST AVAILABLE COPY

part or releases a production work order in the shop. From the order release cycle it goes into a shop status system; there shop floor scheduling occurs.

"Now we maintain a distinction between MRP and the shop scheduling system," continues Dr. Dunlap. "We do not try to schedule our shop with MRP nor do we try to take GT and allow it to have significant influence elsewhere."

According to Mr. Ingram, once MRP is in place it is difficult to modify it to accommodate some of the benefits of GT. "Say you have five or six different parts. They are all reasonably similar, so you say, 'OK, we are going to run shop orders for all these through the cell at the same time to take advantage of set ups and the rest.' It is fine in theory, but may not work in practice."

Scheduling can become very difficult because the MRP system is trying to optimize inventory while GT is attempting to optimize operating costs.

"It should be pointed out that GT work centers are generally set up to handle large numbers of parts, matched to the user's annual requirements," explains Mr. Houtzeel. "MRP proponents have sometimes misunderstood the GT approach, assuming it to lead to highly efficient work centers which produced a few (types) of parts each, but in quantities which were ahead of needs, so that large finished parts inventories were built up.

"This is not the case . . . A properly structured GT work center does not lead to excessive finished parts inventories."

Both MRP and GT are useful tools, the remaining task is a successful integration of the two. □

Metalworking's Manufacturing System: 40

Other articles in this series in 1982:

PCs Provide Shop Floor Control With Boardroom Impact, April 23, pp. 94-96

Speech Technology: The Voice of Tomorrow's Factories? May 21, pp. 92-97

The Emerging Worldwide NC Race, June 25, pp. 59-64

Are Superminis Challenging The Mainframe Computers, July 23, pp. 57-65

Now, It Can Be Tested on The Terminal, Aug. 20, pp. 109-112

Is It Time for a New Approach to NC Programming?, Sept. 24, pp. 83-89

Are Factory Systems the Path to Productivity?, Oct. 22, pp. 41-48

Will Turnkey CAD/CAM Systems Remain Viable?, Nov. 19, pp. 49-56

Guidelines for Buying a Personal Computer, Dec. 15, pp. 49-53

In 1983:

Air Force ICAM Project Paves the Way for the Factory of the Future, Jan. 21, pp. 48-55

Factory of the Future: The Love/Hate Response to Automation, Feb. 25, pp. 45-56.

PC's Move into Motion Control, Mar. 25, pp. 65-70.

Sensors Give Robots an Extra Touch, Apr. 22, pp. 49-57.

Reprints available while supply lasts. For single copy, circle No. 88 on inquiry card. Additional copies, $1.00 each, for articles up to 8 pages. Longer ones $2.00 each. Please include payment with orders of $10 or less. Quantity reprints available. For information, write: IRON AGE, Reader Service, Chilton Way, Radnor, Pa. 19089. Ask for reprint No. 4336.

IRON AGE FEATURE ARTICLE

REPRINTS
REPRINTS
REPRINTS

SINGLE COPIES The first copy is free while supplies last. Just circle the appropriate number shown at the end of the article on an IRON AGE Action Card. (Action Cards are bound in toward the back of the issue opposite the Advertisers Index.)

MORE THAN ONE COPY Available at $1.00 each while supplies last. Include the name of the article and reprint number. Make check payable to IRON AGE and send to the address given below.

BULK COPIES Can be obtained on special order. Call or write for availability and quotation. Contact:

M. E. Platt
IRON AGE Radnor, PA 19089
(215) 964-4325

EFFECTIVE MAY 9, 1983

MATERIALS NEWSFRONT

Important Notice About Iron Age Scrap Prices

Beginning with the Jan. 21 issue Iron Age has been publishing only one set of scrap prices per issue—those with the effective date as close to the issue date as printing schedules permit. Prices for other weeks are available on a weekly basis through our Metal Price Phone Hotline or through our Weekly Price Newsletter.

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 80.50-86.9*
Old range, non-bessemer ..... gross-ton $32.78
Mesabi, regular-unscreened ..... gross-ton $32.53
Mesabi, non-bessemer.....gross-ton $32.25-32.53**

*80.50¢—Pickands Mather as of 1/27/81.
**86.9¢—U. S. Steel as of 3/15/82. Cleveland-Cliffs as of 2/26/82, Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.

Steel Production, Composite Prices

(Effective May 9, 1983)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1983	To Date 1982
Net tons, in thousands	1,683	1,717	27,319	30,608
Capability Utilization Rate	58.2	59.4	52.0	57.2

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 2/14/83)	26.217	26.217	26.217	25.297
Pig Iron** (Net ton=2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	$ 66.83	$ 66.83	$ 70.83	$ 71.50
No. 2 bundles	$ 46.50	$ 46.83	$ 48.50	$ 47.50
Scrap Comparison (Gross Ton)				
No. 1 steel, Pittsburgh	$ 68.50	$ 63.50	$ 75.50	$ 75.50
No. 1 steel, Philadelphia	64.50	64.50	64.50	71.50
No. 1 steel, Chicago	67.50	67.50	72.50	67.50
No. 1 bundles, Detroit	69.50	69.50	75.50	67.50
Low Phos., Youngstown	72.50	69.50	69.50	83.50
No. 1 mach'y cast., Pgh	74.50	74.50	76.50	86.50
No. 1 mach'y cast., Phila	98.50	98.50	98.50	113.50
No. 1 mach'y cast., Chi	108.50	108.50	110.50	119.50

*Finished Steel Composite
Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

**Pig Iron Composite
Based on average prices for basic and foundry pig iron at representative producing points within the U.S.

***Steel Scrap Composite
Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Nonferrous Prices

(Effective May 9, 1983)
Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum	76.00 (Nom.)	76.00-80.00	1/4/82
Copper (C)	83.00-84.00	81.50-83.00	5/3/83
Lead	20.00-23.00	21.00-23.00	5/4/83
Magnesium Ingot	134.00	125.00	6/1/81
Nickel	329.00	350.00	11/25/81
Titanium Sponge	555.00-585.00	555.00	4/29/82
Zinc	40.00	38.00-40.00	4/27/83

ALUMINUM: 99.5%. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, Velasco, Tex. NICKEL: electro., Port Colborne, Canada. ZINC: high grade.

Antimony, American Laredo, Texas . $2.00
Beryllium-aluminum 5% Be, per lb. contained Be $215.00
Beryllium-copper, per lb. cont. Be $130.00
Beryllium 97% powder 200 ..... $166.00
Bismuth, ton lots ..... $1.55-$1.60
Cadmium, under one ton ..... $1.05-$1.15
Calcium, ton lots, crown $3.05
Chromium, 99.8% $3.75
Cobalt, 99%, cathode $12.50
Gold per troy oz. $434.00
Indium, dollars per troy oz. $3.10
Iridium, dollars per troy oz. $600
Magnesium sticks, 10,000 lbs. $1.91
Mercury, per 76-lb. f.o.b. N.Y. ..$315-$335
Molybdenum, lb. tech. moly oxides, 20 lb. MO can $5.85
Nickel oxide sinter at U.S. points of entry $3.12
Palladium, per troy oz. $140
Platinum, per troy oz. $475
Rhodium, per troy oz. $600.00
Silver ingots, per troy oz. $12.59
Vanadium $4.94
Zirconium sponge..... $12.00-$17.00
(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)

May 2—Holiday
May 3—618.13
May 4—618.70
May 5—619.56
May 6—620.05

Scrap Prices

Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ pc: lb)

	Solids	Turning
Copper	78½	69¼
Yellow brass	66⅜	61⅛
Red brass	72	65⅝
Comm. bronze	73¾	67
Mang. bronze	64¾	63
Free cutting rod ends	59	58

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	72
No. 2 copper wire	64
Light copper	55

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	68
No. 2 copper wire	60
Light copper	51
No. 1 composition	55
No. 1 comp. turnings	50
Hvy. yellow brass solids	36
Hvy. yellow brass turnings	28
Radiators	44

Aluminum

New mixed clips	37	—38
Old sheet	35	—36
Old cast	35	—36
Clean dry borings	36	—37

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	29	—30
Mixed L.C. clips	26	—27
Old sheets and cast	22	—23
Borings and turnings	15	—16
Duraluminum clippings	23	—24

Copper and Brass

No. 1 copper wire	59	—60
No. 2 copper wire	53	—54
Light copper	46	—47
Radiators	37	—38
No. 1 composition	47	—48
No. 1 composition turn'gs	44	—45
Cocks and faucets	33	—34
Clean heavy yellow brass	31	—32
Brass Pipe	32	—33
New soft brass clippings	47	—48

Lead

Heavy soft lead	10	—11
Whole batteries	4	— 5
Type metal	15	—16
Electrotype	17	—18

Nickel

Nickel solids	100	—110
Nickel rod ends	100	—110
Nickel sheets, clips	100	—110
Nickel turnings	50	— 60

Zinc

New zinc clippings	15	—16
Old diecast zinc	9	—10

MATERIALS NEWSFRONT

(Effective May 9, 1983) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 68.00 to	$ 69.00
No. 2 hvy. melting	60.00 to	61.00
No. 1 dealer bundles	84.00 to	85.00
No. 1 factory bundles (auto)	79.00 to	80.00
No. 2 bundles	51.00 to	52.00
No. 1 busheling	78.00 to	79.00
Machine shop turn.	7.00 to	8.00
Shoveling turnings	28.00 to	29.00
Cast iron borings	27.00 to	28.00
Low phos. punchings plate	88.00 to	89.00
Heavy turnings	60.00 to	61.00
No. 1 RR hvy. melting	76.00 to	77.00
Rails 2 ft. and under	95.00 to	96.00
Scrap rails, random lgth.	80.00 to	81.00
RR specialties	87.00 to	88.00
No. 1 machinery cast	74.00 to	75.00
Cupola cast	67.00 to	68.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	590.00 to	600.00
18-8 turnings	490.00 to	500.00

Chicago

No. 1 hvy. melting	$ 67.00 to	$ 68.00
No. 2 hvy. melting	60.00 to	61.00
No. 1 dealer bundles	81.00 to	82.00
No. 1 factory bundles (auto)	79.00 to	80.00
No. 2 dealer bundles	44.00 to	45.00
No. 1 busheling	74.00 to	75.00
Shredder scrap	73.00 to	74.00
Machine shop turn.	17.00 to	18.00
Mixed bor. and turn.	18.00 to	19.00
Shoveling turnings	24.00 to	25.00
Cast iron borings	38.00 to	39.00
Low phos. forge crop	87.00 to	88.00
Low phos. punchings plate ¼ in. and heavier	94.00 to	95.00
Low phos. 2 ft. and under	89.00 to	90.00
No. 1 RR hvy. melting	79.00 to	80.00
Scrap rails, random lgth.	67.00 to	68.00
Reroller rails	93.00 to	94.00
Rails, 2 ft. and under	90.00 to	91.00
RR couplers and knuckles	77.00 to	78.00
RR car axles	109.00 to	110.00
No. 1 machinery cast	108.00 to	109.00
Cupola cast	93.00 to	94.00
Stove plate	92.00 to	93.00
Steel car wheels	79.00 to	80.00
Stainless		
18-8 bundles and solids	560.00 to	580.00
18-8 turnings	450.00 to	480.00
430 bundles and solids	135.00 to	140.00
430 turnings	100.00 to	105.00

Philadelphia

No. 1 hvy. melting	$ 63.00 to	$ 66.00
No. 2 hvy. melting	54.00 to	57.00
No. 1 dealer bundles	74.00 to	77.00
No. 2 dealer bundles	42.00 to	45.00
No. 1 busheling	74.00 to	77.00
Shredder scrap	73.00 to	76.00
Machine shop turn.	23.00 to	26.00
Mixed bor. and turn.	23.00 to	26.00
Shoveling turnings	42.00 to	45.00
Low phos. 5 ft. and under	73.00 to	76.00
Low phos. 2 ft. punchings	89.00 to	92.00
Electric furnace bundles	93.00 to	96.00
RR specialties	80.00 to	83.00
Rails, 2 ft. and under	92.00 to	95.00
Cupola cast	60.00 to	63.00
Heavy breakable cast	53.00 to	56.00
No. 1 machinery cast	97.00 to	100.00

Detroit

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 47.00 to	$ 48.00
No. 2 hvy. melting	45.00 to	46.00
No. 1 dealer bundles	69.00 to	70.00
No. 2 bundles	28.00 to	29.00
No. 1 busheling	66.00 to	67.00
Drop forge flashings	42.00 to	43.00
Machine shop turn.	25.00 to	26.00
Mixed borings and turn.	13.00 to	14.00
Shoveling turnings	25.00 to	26.00
Cast iron borings	13.00 to	14.00
Heavy breakable cast	32.00 to	33.00
Mixed cupola cast	48.00 to	49.00
Automobile cast	71.00 to	72.00
Stainless		
18-8 bundles and solids	470.00 to	480.00
18-8 turnings	350.00 to	360.00
430 bundles and solids	115.00 to	125.00

Youngstown

No. 1 hvy. melting	$ 66.00 to	$ 67.00
No. 2 hvy. melting	58.00 to	59.00
No. 1 dealer bundles	77.00 to	78.00
No. 2 dealer bundles	39.00 to	40.00
Machine shop turn.	2.00 to	3.00
Shoveling turnings	7.00 to	8.00
Low phos. plate	72.00 to	73.00
Electric furnace bundles	70.00 to	71.00
Galvanized bundles	68.00 to	69.00

Cleveland

No. 1 hvy. melting	$ 59.00 to	$ 60.00
No. 2 hvy. melting	29.00 to	30.00
No. 1 dealer bundles	73.00 to	74.00
No. 1 factory bundles	76.00 to	77.00
No. 2 bundles	24.00 to	25.00
No. 1 busheling	73.00 to	74.00
Machine shop turn.	2.00 to	3.00
Mixed bor. and turn.	2.00 to	3.00
Shoveling turnings	5.00 to	6.00
Cast iron borings	5.00 to	6.00
Cut structural & plates, 2 ft. and under	89.00 to	90.00
Low phos. punchings plate	89.00 to	90.00
Drop forge flashings	33.00 to	34.00
Foundry steel, 2 ft. & under	59.00 to	60.00
No. 1 RR hvy melting	63.00 to	64.00
Rails, 2 ft. and under	93.00 to	94.00
Rails, 18 in. and under	94.00 to	95.00
Steel axle turnings	69.00 to	70.00
Railroad cast	82.00 to	83.00
No. 1 machinery cast	89.00 to	90.00
Cupola cast	62.00 to	63.00
Stove plate	47.00 to	48.00
Stainless		
18-8 bundles	325.00 to	335.00
18-8 turnings	275.00 to	285.00
430 bundles	80.00 to	85.00

Buffalo

No. 1 hvy. melting	$ 33.00 to	$ 34.00
No. 2 hvy. melting	23.00 to	24.00
No. 1 busheling	36.00 to	39.00
No. 1 dealer bundles	36.00 to	38.00
No. 2 bundles	20.00 to	21.00
Machine shop turn.	9.00 to	10.00
Mixed bor. and turn.	16.00 to	17.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	15.00 to	16.00
Low phos. plate	56.00 to	57.00
Structural and plate, 2 ft. and under	54.00 to	55.00
Rails, 2 ft. and under	50.00 to	51.00
Scrap rails, random lgth.	30.00 to	31.00
No. 1 machinery cast	71.00 to	72.00
No. 1 cupola cast	48.00 to	49.00

St. Louis

No. 1 hvy. melting	$ 58.00 to	$ 59.00
No. 2 hvy. melting	47.00 to	48.00
Foundry steel, 2 ft.	47.00 to	48.00
No. 1 dealer bundles	58.00 to	59.00
No. 2 bundles	44.00 to	45.00
Machine shop turn.	12.00 to	13.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	30.00 to	31.00
No. 1 RR hvy. melting	58.00 to	59.00
Rails, random length	61.00 to	62.00
Rails, 18 in. and under	76.00 to	77.00
RR specialties	80.00 to	81.00
Cupola cast	70.00 to	71.00
Heavy breakable cast	48.00 to	49.00
Stove plate	82.00 to	83.00
Cast iron car wheels	49.00 to	50.00
Rerolling rails	96.00 to	97.00
Unstripped motor blocks	55.00 to	56.00

Birmingham

No. 1 heavy melting	$ 64.00 to	$ 65.00
No. 2 heavy melting	59.00 to	60.00
No. 1 dealer bundles	64.00 to	65.00
No. 2 bundles	45.00 to	46.00
No. 1 busheling	63.00 to	64.00
Shredder scrap	77.00 to	78.00
Machine shop. turn.	24.00 to	25.00
Shoveling turnings	35.00 to	36.00
Cast iron borings	35.00 to	36.00
Electric furnace bundles	62.00 to	63.00
Elec. furnace, 3 ft. & under	59.00 to	60.00
Structural and plate, 2 ft.	76.00 to	77.00
Structural and plate, 4 ft.	73.00 to	74.00
No. 1 RR hvy. melting	63.00 to	64.00
Scrap rails, random lgth.	68.00 to	69.00
Rails, 18 in. and under	86.00 to	87.00
Angles and splice bars	76.00 to	77.00
No. 1 cupola cast	84.00 to	85.00
Unstripped motor blocks	59.00 to	60.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 48.00 to	$ 49.00
No. 2 hvy. melting	48.00 to	49.00
No. 1 dealer bundles	53.00 to	54.00
No. 2 bundles	27.00 to	28.00
Machine shop turn.	6.00 to	7.00
Shoveling turnings	8.00 to	9.00
Cast iron borings	11.00 to	12.00
Low phos. 18 in. and under	72.00 to	73.00
Rails, random length	54.00 to	55.00
Rails, 2 ft. and under	74.00 to	75.00
No. 1 cupola cast	58.00 to	59.00
Heavy breakable cast	25.00 to	26.00
Drop broken cast	67.00 to	68.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 34.00 to	$ 35.00
No. 2 hvy. melting	30.00 to	32.00
No. 2 dealer bundles	22.00 to	23.00
Mixed bor. and turn.	7.00 to	8.00
Machine shop turn.	4.00 to	5.00
Shoveling turnings	10.00 to	12.00
Clean cast. chem. borings	34.00 to	35.00
No. 1 machinery cast	89.00 to	90.00
Mixed yard cast	38.00 to	39.00
Heavy breakable cast	14.00 to	15.00
Stainless		
18-8 prepared solids	480.00 to	500.00
18-8 turnings	380.00 to	400.00
430 prepared solids	70.00 to	80.00
410 solids	60.00 to	70.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 38.00 to	$ 40.00
No. 2 hvy. melting	28.00 to	30.00
No. 1 dealer bundles	40.00 to	42.00
No. 2 bundles	29.00 to	31.00
No. 1 busheling	40.00 to	42.00
Shredder scrap	43.00 to	45.00
Machine shop turn.	3.00 to	5.00
Shoveling turnings	7.00 to	9.00
No. 1 machinery cast	105.00 to	110.00
Mixed cupola cast	28.00 to	30.00
Heavy breakable cast	8.00 to	10.00

San Francisco

No. 1 hvy. melting	$ 42.00 to	$ 44.00
No. 2 hvy. melting	34.00 to	36.00
No. 1 dealer bundles	29.00 to	31.00
No. 2 dealer bundles	13.00 to	15.00
Machine shop turn.	6.00 to	8.00
Cast iron borings	6.00 to	8.00
No. 1 cupola cast	85.00 to	87.00

Los Angeles

No. 1 hvy. melting	$ 41.00 to	$ 43.00
No. 2 hvy. melting	30.00 to	32.00
No. 1 dealer bundles	28.00 to	30.00
No. 2 dealer bundles	10.00 to	12.00
Machine shop turn.	6.00 to	8.00
Shoveling turnings	10.00 to	12.00
Cast iron borings	6.00 to	8.00
Elec. furnace, 1 ft. and under (foundry)	86.00 to	88.00
No. 1 cupola cast	88.00 to	90.00

Seattle

No. 1 hvy. melting	$ 80.00 to	$ 82.00
No. 2 hvy. melting	49.00 to	51.00
No. 2 bundles	39.00 to	41.00
No. 1 cupola cast	94.00 to	96.00
Mixed yard cast	81.00 to	83.00

Hamilton, Ont.

Brokers buying price per net ton on cars:

No. 1 heavy melting	$ 55.00
No. 2 heavy melting cut 2 ft. and under	52.00
No. 1 dealer bundles	60.00
No. 2 bundles	30.00
Mixed steel scrap	34.00
Bush. new fact. prep'd.	58.00
Bush. new fact. unprp'd.	50.00
Machine shop turn.	25.00
Short steel turn.	28.00
Mixed bor. and turn.	15.00
Cast scrap	48.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 67.00 to	$ 68.00
No. 2 hvy. melting	51.00 to	53.00
No. 2 bundles	34.00 to	36.00
Machine shop turn.	19.00 to	20.00
Crushed turnings	35.00 to	37.00
Shredder scrap	67.00 to	68.00
Cut structural plate 2 ft. and under	84.00 to	86.00
Unstripped motor blocks	58.00 to	60.00
Cupola cast	71.00 to	73.00

METALWORKING ORDER TRENDS

Future looks good as orders go up and stocks go down

The latest complete data on monthly orders flowing to producers of durable goods shows a continuing upward movement. In March, these orders went up by 3.5 pct over February to an $80.8 billion level.

The March rise reversed the 3.5 pct decline in orders during February. More importantly.

March orders were up 16 pct from the recession low point of $69.6 billion in October of last year.

The March data on new orders, shipments and inventories carries the promise of further near-future gains. Orders received by durable goods manufacturers (85 pct in metalworking) in March ran ahead of shipments by $1.2 billion.

On top of that, inventories fell by a sharp $2.4 billion.

Commerce Secretary Malcolm Baldrige, in noting this good-tidings of data, said it means that "future demand gains will have to be matched by further increases in production."

In other words, companies soon will not be able to fill their customer orders out of stock; they will have to place more orders themselves. That's the chain buildup of orders that leads to solid recovery.

Still, orders have a way to go before they again equal pre-recession levels. Orders in March were down about 8 pct from the peak of $87.6 billion reached in October 1981.

After adjustment for inflation, this means March orders were really down by about 17 pct.

Two notable figures on the table here include orders received by nondefense capital goods producers and orders for nonelectrical machinery. These gains are related in that most of the increase in each case was due to surging strength in orders for office and computing equipment.

A backward step in orders was scored by the steel industry in March. In a roller-coaster move, these orders were down 15 pct in dollar volume—after having gone up by 21 pct in the month before.

Producers of defense-related capital goods also received more orders in March than in February.

These rose 25 pct to put dollar volume of orders at $7.7 billion for the month.

Further gains in these orders in the months ahead are anticipated by most industry executives.

Source: U.S. Dept. of Commerce Billions of dollars, seasonally adjusted monthly total, unless otherwise noted		Last Month or Qtr.	Previous Month or Qtr.	Same Period Year Ago
Capital Expenditures (Annual Rates)				
U.S. Industry, Total	2nd Qtr.	$302.2*	$302.3	$323.2
Manufacturing, Total	2nd Qtr.	111.3*	112.8	123.8
Manufacturing, Durable Goods	2nd Qtr.	50.9*	52.8	59.0
Mining Industry	2nd Qtr.	14.6*	14.6	16.6
Key Indicators, Durable Goods Manufacturing				
New Orders	March	80.8	78.1	77.9
Shipments	March	79.6	77.6	78.1
Inventories	March	171.1	173.5	186.1
Unfilled Orders	March	290.4	289.2	305.9
New Orders, Metalworking				
Capital Goods Producers, Nondefense Industries	March	20.8	18.8	22.2
Capital Goods Producers, Defense Industries	March	7.7	6.1	7.1
Primary Metals, Total	March	8.4	9.7	7.6
Steel (SIC 331)	March	3.5	4.1	3.4
Iron & Steel Castings (SIC 332)	March	0.7	0.9	0.8
Nonferrous Metals	March	4.2	4.8	3.4
Nonelectrical Mach.-Equip. Industries, Total	March	14.9	12.6	14.4
Engines & Turbines	March	0.9	1.0	1.0
Farm Machinery & Equipment (Shipments)	March	0.9	0.8	1.0
Construction, Mining & Materials Hdlg. Equip.	March	1.9	1.8	2.4
General Industrial Machinery	March	1.0	1.2	1.2
Fluid Power Equipment** (Index-1972=100)	March	212	197	257
Metalworking Machinery	March	0.6	0.6	0.5
Machine Tools, Total (Millions $, unadjusted)***	March	125.6	97.5	137.8
Machine Tools, Metal-Cutting***	March	77.4	77.4	105.8
Machine Tools, Metal-Forming***	March	35.9	20.1	32.0
Electrical Mach. & Equip. Industries, Total	March	12.5	12.1	12.8
Elec. Transmission Equip. & Industrial Apparatus	March	1.6	1.7	1.7
Household Appliances	March	1.2	1.1	1.0
Communication Equipment	March	4.3	4.1	5.0
Transportation Equip. Industrial, Total	March	19.3	18.0	17.1
Motor Vehicles & Parts (Shipments)	March	10.9	11.3	8.8
Aircraft, Missiles & Parts	March	7.4	5.6	7.2
Shipbuilding & Military Tanks	March	0.2	0.3	0.5
Fabricated Metal Products, Total	March	9.4	9.2	9.8
Instruments, Total	March	3.7	3.9	4.0

*Est.—Commerce Dept.; **Source: National Fluid Power Assn.; ***Source: NMTBA.

BEST AVAILABLE COPY

IRON AGE 1982 STEEL INDUSTRY FINANCIAL ANALYSIS

Data Cover Operations of Companies Representing Approximately 90 pct of the Steel Industry

Company[1]	Year	Raw Steel Production Thousands of Net Tons	Steel Shipments Thousands of Net Tons	Net Sales & Operating Revenues Thousands of Dollars	Employment Costs Thousands of Dollars	Employment Costs as Percent of Sales	Operating Profit[2] 000 of $	Operating Profit as Percent of Sales	Depreciation Depletion and Amortization 000 of $	Provision for Federal Income Taxes 000 of $	Net Income 000 of $	Net Income Percent of Sales	Invested Capital (to included funded debt payable after one year preferred and common stock surplus) 000 of $	Net Income Percent of Investment[4]	Working Capital 000 of $	Funded Debt (Payable after 1 year) 000 of $	Interest Expense on Funded Debt 000 of $	Capital Expenditures 000 of $	Stockholders' Equity 000 of $	Pct Return on Stockholders' Equity	Number of Common Shares Outstanding 000 of $	Common Stock 000 of $	Common Dividend Declared 000 of $	Earnings Per Common Share	Dividends Per Common Share	Price Range Common Share	P/E Ratio	
1. United States Steel Corp.[6,7]	1982	12,100	10,300	18,907,000	4,395,000	23.2	2,140,000	11.3	1,031,000	408,000	(361,000)	(1.9)	14,340,000	3.8	710,000	6,843,000	911,000	1,936,000	6,468,000	(5.6)	102,098	2,042,000	166,000	(3.99)	1.75	30⅛-16	(8)-(4)	1.
	1981	23,400	16,600	13,941,000	5,078,000	36.4	2,500,000	17.9	571,000	666,000	1,077,000	7.7	9,295,000	14.0	2,589,000	2,340,000	226,000	843,000	6,260,000	17.2	90,579	1,812,000	178,000	12.07	2.00	35¼-23⅜	3-2	
2. Bethlehem Steel Corp.[8]	1982	10,521	8,154	5,260,300	2,628,600	50.0	(1,025,800)	(19.5)	388,900	(27,000)	(1,469,600)	(27.9)	2,508,200	(55.5)	410,600	1,271,400	77,900	470,300	1,236,800	(53.2)	43,682	507,200	56,800	(33.64)	1.30	23.50/14.625	—	2.
	1981	16,721	11,572	7,298,000	3,115,700	42.7	730,600	10.0	377,300	57,000	210,900	2.9	3,735,600	7.3	856,400	972,400	60,400	455,300	2,763,200	8.0	43,682	507,200	69,900	4.83	1.60	32.00/19.75	6.63/4.09	
3. LTV Corp. (Jones & Laughlin[9,10,11,12]	1982	6,486	5,142	4,776,800	1,723,100	36.1	(63,000)	(1.3)	101,500	(106,900)	(154,900)	(3.4)	2,674,500	(1.9)	819,100	1,459,900	105,000	290,100	1,115,800	(12.9)	49,020	557,603	21,400	(3.20)	0.4375	17¾-8⅛	(3.4)	3.
	1981	10,858	7,595	7,053,700	2,022,800	28.7	749,900	10.6	126,400	126,500	386,300	5.5	2,695,700	19.2	977,100	1,243,300	112,000	301,800	1,285,400	40.8	48,189	789,095	—	7.97	—	26⅛-12⅝	2.1	
4. National Steel Corp.	1982	5,501	4,956	3,044,214	1,170,200	38.4	(523,355)	—	148,163	(269,709)	(462,773)	—	1,676,031	—	182,715	671,784	66,205	101,557	1,007,247	—	18,644	67,550	19,845	(24.77)	1.0625	24½-13⅜	—	4.
	1981	8,168	6,613	4,062,291	1,306,400	32.2	303,038	7.5	158,071	8,300	86,084	2.1	2,163,932	6.4	373,629	676,735	52,783	186,073	1,492,197	5.8	18,753	69,882	37,470	4.59	2.00	30⅜-22⅝	6.7-4.9	
5. Inland Steel Co.[13]	1982	5,171	4,086	2,843,989	1,105,654	39.4	(50,840)	—	125,296	(107,587)	(118,795)	(4.2)	1,957,469	—	265,110	758,747	64,559	94,175	1,198,722	—	21,342	283,829	23,975	(5.60)	1.125	18⅛-26¼	—	5.
	1981	8,054	5,781	3,820,056	1,239,137	33.0	293,122	7.8	161,194	11,530	57,255	1.5	2,087,164	4.4	410,730	777,993	63,143	134,535	1,309,171	4.4	20,957	255,329	42,039	2.69	2.00	22¼-36	9	
6. Armco Inc.[14]	1982	5,104	4,112	5,427,900	1,911,100	35.2	143,500	2.6	196,900	(278,300)	(345,100)	(6.4)	2,750,300	(9.7)	613,300	769,500	77,200	338,500	1,980,800	(15.5)	65,554	327,800	94,400	(5.41)	1.50	27⅜-14½	—	6.
	1981	8,188	5,767	6,906,000	1,967,900	28.5	702,300	10.2	174,300	130,700	294,500	4.3	3,147,400	10.8	1,062,000	680,200	45,400	393,600	2,467,200	13.7	63,303	316,500	99,500	4.97	1.72	41⅜-24½	5.63	
7. Republic Steel Corp.	1982	5,086	4,345	2,738,160	1,174,189	42.9	(325,110)	(11.9)	86,070	(224,000)	(239,219)	(8.7)	2,256,010	(8.1)	313,216	852,974	56,671	214,799	1,403,036	(14.4)	16,183	161,827	18,206	(14.78)	1.125	24.625-13.875	(1.3)	7.
	1981	9,433	6,535	4,382,073	1,511,168	34.5	369,343	8.4	129,627	25,800	190,087	4.3	2,261,292	9.5	486,748	600,244	23,827	299,221	1,661,048	12.6	16,183	161,827	36,411	11.75	2.25	32.125-22.375	2.3	
8. Wheeling-Pittsburgh Steel Corp.[15,16,17]	1982	1,818	1,368	775,403	355,221	45.8	(30,142)	(3.9)	38,219	(24,828)	(58,769)	(7.6)	939,623	(2.5)	230,026	495,915	35,402	160,211	443,708	(13.2)	4,005	40,051	—	(15.98)	—	12.25-30.25	—	8.
	1981	2,944	2,146	1,204,889	463,814	38.5	100,901	8.4	42,989	6,600	60,059	5.0	834,324	9.6	195,477	358,733	19,769	110,177	475,591	12.6	3,968	39,681	—	14.28	—	19.625-39.75	2.1	
9. Nucor Corp.	1982	1,216	1,127	486,018	108,541	22.3	74,374	15.3	26,287	15,600	22,192	4.6	280,511	10.7	66,440	48,230	7,785	14,789	232,281	10.0	6,996	20,359	3,626	3.18	.52	63.50-34.13	20.0-10.7	9.
	1981	1,512	1,292	544,821	116,059	21.3	78,172	14.3	21,600	10,100	34,729	6.4	296,130	15.3	58,350	83,754	10,472	101,519	212,376	17.8	6,964	19,021	3,326	5.02	.48	82.25-49.00	16.4-9.8	
10. Korf Industries, Inc.[18,19]	1982	1,175	1,101	318,312	74,009	23.3	—	—	—	—	—	—	—	—	—	—	12,100	—	—	—	—	—	—	—	—	—	—	10.
	1981	1,318	1,225	411,158	76,262	18.5	57,571	14.0	—	—	1,895	.5	277,326	—	36,334	—	26,014	—	—	—	—	—	—	—	—	—	—	
11. Sharon Steel Corp.	1982	1,054	822	692,886	221,886	32.0	4,017	.06	30,040	(58,963)	(105,636)	(15.2)	649,054	.09	69,195	539,322	111,590	23,136	109,732	(96.3)	82,053	822	7,385	(1.29)	.09	5⅜-1⅞	—	11.
	1981	1,465	1,124	911,973	251,264	22.6	140,118	15.4	29,050	(2,900)	20,777	2.3	758,280	16.1	190,171	535,527	101,135	54,847	222,753	9.3	82,053	822	29,539	.25	.36	6⅛-3¼	27.50-15.00	
12. Northwestern Steel & Wire Co.	1982	1,041	809	323,303	126,873	39.2	(22,131)	(6.8)	16,074	(24,046)	(14,170)	(4.4)	248,477	(5.7)	84,979	—	11	57,745	248,477	(5.7)	7,506	37,532	7,506	(1.89)	1.00	26-14⅛	(14)-(8)	12.
	1981	1,523	1,207	468,494	146,989	31.4	67,490	14.4	14,502	24,814	28,130	6.0	270,153	10.4	126,900	—	44	24,742	270,153	10.4	7,506	37,532	9,008	3.75	1.20	29¼-20¼	8-5	
13. Kaiser Steel Corp.	1982	873	943	734,935	353,993	48.2	24,016	3.3	60,363	(48,000)	2,665	0.4	489,062	6.7	327,711	223,943	30,043	45,846	265,119	1.0	7,267,256	149,887	—	.29	—	24⅞	56	13.
	1981	2,000	1,485	1,012,708	428,176	42.3	159,994	15.8	48,541	(14,000)	(438,719)	(43.3)	506,987	(81.7)	332,650	242,963	24,346	97,619	264,024	(166.2)	7,266,956	322,471	—	(61.70)	—	50¾	—	
14. CF&I Steel Corp.	1982	794	617	362,835	177,145	48.8	(18,809)	(5.2)	41,645	(31,836)	(23,495)	(6.5)	254,117	(9.2)	12,991	50,000	79	97,336	204,117	(10.8)	3,966	19,829	3,966	(5.92)	1.00	36-21	—	14.
	1981	1,597	1,150	723,766	280,286	38.7	115,960	16.0	52,872	24,183	39,231	5.4	231,577	19.2	33,600	—	5,282	47,182	231,577	17.9	3,966	19,829	13,880	9.89	3.50	47-33½	3-5	
15. Florida Steel Corp.[20,21]	1982	721	648	246,543	59,669	24.0	2,384	1.0	9,250	(8,200)	(8,321)	(3.3)	154,624	.9	45,345	58,661	9,655	6,603	92,015	(8.5)	5,963	8,339	3,631	(1.40)	.61	19¼-10½	—	15.
	1981	920	832	319,524	59,702	18.7	36,014	11.3	5,678	9,892	19,699	6.2	137,768	14.8	45,524	55,492	746	54,000	103,082	19.1	5,911	7,453	2,871	3.33	.4875	19⅜-7⅝	5.8-2.3	
16. Chaparral Steel Co.[22]	1982	607	520	148,474	31,437	21.17	19,286	12.99	10,935	(5,874)	12,208	8.22	263,053	14.52	25,534	189,343	25,995	149,355	73,710	16.56	4,500	4,500	—	2.71	—	—	—	16.
	1981	429	393	143,546	21,287	14.83	22,334	15.56	3,555	463	15,232	10.61	203,352	14.58	19,119	141,750	14,420	121,468	61,502	24.77	4,500	4,500	—	3.38	—	—	—	
17. Cyclops Corp.	1982	526	639	873,165	261,358	29.9	(1,379)	(.2)	17,856	(15,709)	(11,921)	(1.4)	242,682	(3.2)	122,976	64,339	8,395	19,442	178,343	(6.7)	3,753	3,753	3,788	(3.60)	1.10	13⅜-27⅛	—	17.
	1981	489	751	1,031,414	272,342	26.4	65,381	6.3	16,978	16,953	21,384	2.1	253,524	10.4	132,264	59,032	10,066	19,659	194,492	11.0	3,736	3,736	4,383	6.21	1.30	24¼-39	4.1	
18. Lukens Steel Co.[23]	1982	495	—	389,678	—	—	28,835	7.4	17,561	(306)	1,479	.4	232,044	5.0	53,376	91,894	10,101	15,131	140,150	1.0	5,193	3,180	3,760	.28	.72	13½-8¾	48.2-31.3	18.
	1981	722	—	405,718	—	—	34,843	8.6	12,946	8,703	10,634	2.6	173,476	7.6	36,018	30,242	2,560	9,845	143,234	7.8	5,233	3,180	3,297	2.03	.63	17¼-12½	8.5-6.2	
19. Laclede Steel Co.	1982	487	349	178,223	76,799	43.1	(3,355)	(1.9)	5,293	(3,176)	(8,106)	(4.5)	83,839	(6.5)	37,490	29,200	2,634	7,227	54,639	(14.8)	2,210	44,200	—	(3.67)	—	10-7	—	19.
	1981	631	482	252,722	95,856	37.9	14,666	5.8	5,039	3,374	3,935	1.6	86,595	7.2	43,261	23,850	2,318	6,038	62,745	6.3	2,210	44,200	—	1.78	—	17¼-9	10-5	
20. Keystone Consolidated Industries, Inc.	1982	427	418	351,919	148,269	42.1	2,646	.8	10,708	994	(13,420)	(3.8)	154,334	(5.9)	70,912	56,902	4,364	11,975	97,288	(13.8)	1,874	2,610	—	(7.16)	—	19⅛-9	—	20.
	1981	602	521	401,340	157,120	39.1	13,789	3.4	10,262	19	(557)	(.1)	151,549	2.3	72,868	40,797	4,065	9,049	110,608	(.5)	1,874	2,610	—	(.30)	—	20¼-8⅝	—	
21. Interlake Inc.[24,25,26]	1982	420	327	767,300	268,969	35.1	38,674	5.0	22,956	272	5,752	.7	470,550	2.5	175,891	122,338	10,994	27,864	323,251	1.6	5,708	87,010	15,998	.92	2.60	35½-22½	34.0	21.
	1981	691	526	1,016,605	308,763	30.4	114,660	11.3	25,976	30,953	46,577	4.6	498,358	10.6	199,803	126,618	11,354	37,393	358,748	13.5	6,179	100,292	14,735	7.59	2.40	45-27½	4.5	
22. Phoenix Steel Corp.[27]	1982	274	198	148,612	59,362	39.9	(3,711)	(2.5)	3,939	—	(17,491)	(11.8)	158,666	(2.8)	4,093	72,308	13,086	6,982	11,817	(148.0)	9,201	21,089	—	(2.07)	—	2.375-1.125	—	22.
	1981	404	280	207,469	68,825	33.2	22,353	10.8	5,909	—	2,012	1.0	151,462	10.8	15,753	90,084	14,382	12,816	4,339	46.3	9,185	21,088	—	.05	—	3.375-1.750	—	
23. Copperweld Corp.	1982	246	337	374,485	134,400	35.9	10,395	2.8	15,824	(6,533)	(10,128)	(2.7)	265,729	(1.4)	65,148	94,544	6,398	42,953	171,185	(5.9)	8,603	7,173	9,974	(1.18)	1.16	24¾-12¾	—	23.
	1981	612	622	618,454	186,227	30.1	87,324	14.1	13,762	31,239	37,221	6.0	249,196	17.2	60,174	58,146	5,650	39,243	191,050	19.5	8,590	7,159	9,143	4.34	1.07	31⅜-15⅛	5.5	
24. Athlone Industries, Inc.	1982	—	—	242,505	—	—	11,535	4.8	4,749	(1,927)	2,338	1.0	131,019	9.3	57,855	75,238	9,903	3,717	52,781	4.4	2,342	234	3,760	.91	1.60	28½-14⅜	18.3	24.
	1981	—	—	323,646	—	—	41,068	12.7	4,850	11,208	14,020	4.3	132,203	17.3	48,994	73,308	8,835	7,959	58,895	23.8	2,466	247	3,868	5.16	1.50	30-21⅜	5.5	
25. Carpenter Technology Corporation[28,29]	1982	—	—	487,964	182,218	37.3	64,417	13.2	13,099	17,814	33,162	6.8	341,670	9.8	145,305	53,308	342	62,139	288,362	11.5	8,614	44,522	18,084	3.85	2.10	50-30¼	8.1	25.
	1981	—	—	570,693	178,294	31.2	90,239	15.8	11,820	33,154	44,731	7.8	277,532	16.3	126,918	4,621	534	32,141	272,911	16.4	8,603	44,465	17,195	5.20	2.00	53-30⅛	9.6	
26. Eastmet Corporation	1982	—	—	215,976	—	—	(11,649)	(5.4)	6,749	(12,730)	(12,900)	6.0	122,448	(4.2)	55,203	59,967	7,232	5,923	62,481	—	4,876	4,876	—	(2.65)	—	11.50-3.50	—	26.
	1981	—	—	304,148	—	—	8,121	2.7	4,931	(2,988)	178	—	131,583	—	63,075	56,202	6,000	15,809	75,381	.2	4,876	4,876	4,388	.04	.90	16.00-11.25	—	
GRAND TOTAL	1982	74,577[2]	61,567[2]	50,800,587	16,673,983	32.8	484,798	1.0	2,429,376	(812,944)	(3,355,948)	—	33,647,012	—	4,964,511	14,952,757	1,652,544	4,203,805	17,368,861	—	—	—	—	—	—	—	—	
	1981	120,828[2]	87,014[2]	57,925,052	19,276,109	33.3	6,861,930	11.9	2,029,152	1,217,622	2,261,399	3.9	30,735,137	+10.1	8,561,526	9,271,991	825,531	3,415,035	20,551,677	—	—	—	—	—	—	—	—	
Percent change 1981 to 1982		−39	−30	−12.3	−13.5	—	−92.9	—	+19.7	—	—	—	+9.5	—	−42.0	+61.3	+100.2	+23.1	−15.5	—	—	—	—	—	—	—	—	

Parenthesis ( ) denotes loss or credit

N.A. indicates Not Available

Footnotes

1. Companies are ranked on basis of raw steel produced in 1982.
2. AISI figures for the whole industry.
3. Operating profit is income before depreciation, income taxes and interest on long-term debt.
4. Net income percent of investment is net income plus expense on funded debt divided by invested capital.
5. Stockholders' equity is total assets minus total liabilities.
6. USS—All 1982 figures include effect of Marathon Oil Company acquisition.
7. USS—Invested capital includes long-term debt, notes payable, minority interest, preferred stock of consolidated subsidiary, and preferred and common stock and net income reinvested in business.
8. Bethlehem—Results for 1982 include a non-recurring loss of $1,050,000,000 for restructuring of operations.
9. LTV—1981 results are reclassified for discontinued operations to conform with 1982 presentation.
10. LTV—Invested capital is defined as long-term portions of borrowings, leases, deferred income, deferred income taxes, minority interest, obligation to exchange debt for common stock, preferred stock with mandatory redemption and shareholders' equity.
11. LTV—Net income pct of investment and pct return on stockholders' equity—calculation for 1981 excludes the loss and shareholders' equity associated with the discontinued Wilson Meet and Food operations.
12. LTV—Common stock value—year-end market price ($11.375—1982; $16.375—1981) times outstanding shares of common stock.
13. Inland—Earnings per common share, 1982 includes extraordinary gain on early retirement of debt, $10,323 or 48¢ per share and cumulative effect of depreciation method change, $3,990 or 19¢ per share.
14. Armco—Operating profit, 1982 also excludes $460,300 in special charges recorded in 1982.
15. Wheeling-Pittsburgh—Net sales and operating revenues 1982 and 1981 includes $2,195,000 and $33,247,000 from the sales of tax benefits.
16. Wheeling-Pittsburgh— Net income 1982 includes $20,166,000 from the cumulative effect on prior years (to Dec. 31, 1981) of a change in accounting principle—depreciation.
17. Wheeling-Pittsburgh—Net income, 1981 includes $28,516,000 from the cumulative effect on prior years (to Dec. 31, 1980) of a change in accounting principle—LIFO.
18. Korf Industries—1982 figures for operating profit, depreciation, taxes, net income, invested capital, working capital, funded debt, and interest expense were not available at press time and hence not included in industry totals for 1982.
19. Korf Industries—1981 figures are restated for disposal of subsidiary.
20. Florida Steel—Fiscal year ends Sept. 30.
21. Florida Steel—1981 data restated to comply with FASB 43 (Accounting for Compensated Absences). The impact on fiscal '81 of this restatement is 4¢ per share.
22. Chaparral Steel—Unaudited financial data for the 12-month period ended Nov. 30. Fiscal year ends May 31.
23. Lukens—Provision for taxes 1982 and 1981 includes state and Federal taxes.
24. Interlake—Operating Profit—excludes minority interest (net of tax) of $1,210,000 in 1982 and $1,589,000 in 1981.
25. Interlake—Provision for Federal income taxes—1981 represents all taxes on income.
26. Interlake—Invested capital includes retained earnings.
27. Phoenix Steel Corp.—Net income (loss) for 1982 includes $3,245 favorable adjustment for cumulative effect through Dec. 31, 1981 for change in depreciation method.
28. Carpenter Technology—Fiscal year ends June 30.
29. Carpenter Technology—1981 invested capital, net income pct of investment, working capital, and stockholders' equity restated for adoption of Compensated Absence Accounting.

IRON AGE, May 2, 1983

BEST AVAILABLE COPY

IRON AGE 1982 NONFERROUS INDUSTRY FINANCIAL ANALYSIS

( ) Denotes Loss or Credit

Dollar Values in Thousands

Company	Year	Net Sales and Operating Revenues 000 of $	Operating Profit 000 of $	Operating Profit as Percent of Sales	U.S. and Foreign Income Taxes 000 of $	Extraordinary Income (Loss) 000 of $	Net Earnings 000 of $	Net Earnings as Percent of Sales	Net Earnings for Common Share	Dividends Per Common Share	Number of Common Shares Outstanding at Year End	Stockholders Equity 000 of $	Net Earnings as Percent of Stockholders Equity	Funded and Other Long Term Dept 000 of $	Invested Capital 000 of $	Long Term Dept as Pct of Invested Capital	Net Earnings as Percent of Invested Capital	Working Capital 000 of $	Capital Spending 000 of $	Retained Earnings at End of Year 000 of $	
1. Alcan Aluminium Ltd.	1982	4,644,000	(12,000)	—	(9,000)	—	(58,000)	—	—	1.35	85,188,508	2,511,000	—	1,837,000	4,348,000	42.2	—	1,361,000	643,000	1,983,000	1.
	1981	4,978,000	441,000	8.8	142,000	—	264,000	5.3	3.24	1.80	82,651,633	2,631,000	10.0	1,612,000	4,243,000	37.9	6.2	1,486,000	974,000	2,154,000	
2. Aluminum Co. of America	1982	4,647,600	(204,900)	—	(144,100)	19,900	10,800	0.2	0.11	1.65	78,924,733	3,112,500	0.3	1,702,600	4,815,100	35.4	0.2	965,800	499,600	2,645,900	2.
	1981	4,977,482	327,600	6.6	90,100	—	296,187	6.0	3.97	1.80	74,458,330	3,136,700	9.8	1,381,896	4,518,564	30.6	8.3	950,430	677,800	2,765,200	
3. AMAX Inc.	1982	2,415,500	(42,900)	—	17,400	—	(390,100)	—	—	0.85	65,589,850	2,388,200	—	1,307,800	3,696,000	35.4	—	271,800	310,200	1,020,200	3.
	1981	2,799,400	452,500	16.2	138,500	—	230,800	8.2	3.31	2.40	63,089,388	2,805,900	8.4	1,234,700	4,040,600	30.6	5.7	485,900	609,300	1,487,900	
4. Asarco Inc.	1982	1,350,695	(94,087)	—	(11,803)	(35,376)	(74,080)	—	—	0.50	27,351,993	967,068	—	481,641	1,588,709	30.3	—	133,356	145,042	823,700	4.
	1981	1,531,506	9,552	0.6	6,136	—	50,038	3.3	1.54	1.40	26,025,146	1,018,783	3.8	388,113	1,546,896	25.1	2.5	154,951	162,888	929,385	
5. Brush Wellman Inc.	1982	193,900	34,246	17.7	12,590	—	11,060	5.7	1.27	0.80	8,538,463	132,212	8.5	64,671	196,883	32.9	5.6	71,000	16,168	111,739	5.
	1981	190,238	34,534	18.2	12,228	—	19,294	10.1	2.22	0.73	8,439,561	127,130	16.0	29,000	156,130	18.6	12.4	72,256	12,199	107,520	
6. Cominco Ltd.	1982	1,234,700	162,800	13.2	(43,000)	18,100	(31,200)	—	—	1.30	18,805,743	834,900	—	688,000	1,522,900	45.2	—	221,000	230,400	554,400	6.
	1981	1,416,900	346,700	24.5	50,800	5,600	70,300	5.0	3.35	4.10	18,802,718	854,500	8.2	566,700	1,421,200	39.9	4.9	292,000	333,700	622,300	
7. Engelhard Corp.	1982	2,018,885	78,940	4.0	6,468	—	64,811	3.2	2.41	0.56	26,907,000	411,522	15.7	65,844	477,366	13.8	13.6	189,000	61,316	410,465	7.
	1981	2,191,792	100,212	5.0	19,026	(5,210)	66,392	3.0	2.46	0.56	27,024,000	375,704	17.7	25,420	401,124	6.3	16.6	129,888	62,878	364,660	
8. Fluor Corp.	1982	7,336,700	285,200	3.9	132,400	—	152,800	3.9	1.94	0.80	78,328,000	1,776,400	8.8	1,009,900	2,786,300	36.2	5.5	53,000	525,900	680,300	8.
	1981	6,073,400	290,500	4.8	131,600	—	158,900	4.8	2.82	0.80	78,093,000	1,683,200	14.2	1,104,800	2,788,000	39.6	5.7	164,800	448,100	590,100	
9. Freeport-McMoRan Inc.	1982	747,888	82,880	11.1	5,876	—	65,946	8.8	0.95	0.60	69,817,000	735,130	9.1	481,027	1,216,157	39.6	5.4	61,072	479,768	586,071	9.
	1981	835,404	158,972	19.0	78,550	—	159,366	19.1	2.30	0.59	69,324,000	706,985	24.7	365,559	1,072,544	34.1	14.9	29,684	517,098	561,886	
10. Inco Ltd.	1982	1,235,983	(145,327)	—	(106,628)	—	(204,213)	—	—	0.20	90,343,000	1,511,635	—	1,129,293	2,640,928	42.8	—	746,788	95,290	839,952	10.
	1981	1,885,923	278,385	14.8	81,162	464,638	(469,518)	—	—	0.59	76,850,000	1,632,945	—	1,101,981	2,734,926	40.3	—	981,535	185,639	1,088,317	
11. Kaiser Aluminum & Chemical Corp.	1982	2,911,500	106,700	3.7	18,200	—	(115,000)	—	—	0.80	43,112,072	1,347,300	—	1,016,400	2,363,700	43.0	—	404,300	358,400	1,047,600	11.
	1981	3,225,500	402,300	12.5	8,000	—	132,900	4.1	3.08	1.40	43,071,933	1,497,400	8.9	908,100	2,405,500	37.8	5.5	323,500	463,000	1,197,800	
12. Martin Marietta Corp.	1982	3,526,506	73,536	2.1	200	—	91,642	2.6	2.92	1.92	16,916,562	436,560	11.2	1,234,587	1,671,147	73.9	5.5	241,929	390,568	1,066,264	12.
	1981	3,294,087	221,577	6.7	83,300	—	200,072	6.1	5.39	1.80	36,251,892	1,199,977	17.4	359,792	1,559,769	23.1	12.8	418,951	489,185	1,033,900	
13. Newmont Mining Corp.	1982	711,605	(24,626)	—	(18,666)	—	48,553	7.0	1.76	1.15	27,148,000	1,320,739	4.0	212,925	1,533,664	14.0	3.0	250,732	200,588	1,100,526	13.
	1981	903,096	59,682	7.0	26,353	294,556	375,593	42.0	14.30	2.55	27,028,000	1,303,618	29.0	139,058	1,442,676	10.0	26.0	319,240	184,846	1,083,873	
14. Noranda Mines Ltd.	1982	2,793,678	(124,947)	—	(65,980)	57,229	(82,944)	—	—	0.75	117,542,000	2,705,882	—	1,722,854	4,654,651	37.0	—	1,041,742	662,747	1,187,563	14.
	1981	2,944,350	175,776	6.0	59,415	59,027	164,806	5.6	1.33	1.40	116,088,000	2,869,412	5.7	922,315	4,078,315	22.6	4.0	867,032	596,455	1,388,180	
15. Olin Corp.	1982	1,823,137	113,537	6.2	1,605	(19,000)	53,308	2.9	2.26	1.20	23,638,000	805,185	6.7	293,285	1,098,470	26.7	4.9	323,585	139,015	669,488	15.
	1981	2,001,346	180,527	9.0	42,858	—	92,836	4.6	3.88	1.15	23,631,000	793,187	12.1	298,936	1,092,123	27.4	8.5	293,296	186,331	644,519	
16. Phelps Dodge Corp.	1982	957,795	33,089	3.5	(32,544)	—	(74,296)	—	—	0.30	21,760,706	977,991	—	667,212	1,693,493	39.4	—	162,992	100,077	823,239	16.
	1981	1,438,555	176,550	12.3	20,629	20,629	69,321	4.8	3.12	1.60	21,739,162	1,089,003	6.4	579,493	1,716,786	33.8	4.0	182,638	147,653	907,832	
17. Phibro-Salomon Inc.	1982	26,703,000	434,000	1.6	97,000	—	337,000	1.3	4.97	0.94	68,869,000	1,769,000	21.2	766,000	2,535,000	30.2	13.3	1,643,000	52,000	1,627,000	17.
	1981	26,655,000	298,000	1.2	9,000	—	289,000	1.1	4.23	0.94	68,097,000	1,477,000	21.2	827,000	2,304,000	35.9	12.5	1,320,000	74,000	1,354,000	
18. Reynolds Metals Co.	1982	2,980,900	(83,900)	—	(60,200)	31,400	7,700	0.3	0.26	1.75	19,811,167	1,373,100	0.6	890,600	2,263,700	39.0	0.3	569,600	157,500	1,085,000	18.
	1981	3,527,600	118,700	3.4	32,000	—	86,700	2.5	4.40	2.40	19,376,879	1,363,400	6.5	860,500	2,223,900	39.0	3.9	554,600	205,100	1,113,600	

Aluminum Co. of America: Net income for 1982 includes a nonrecurring gain of $19.9 million from exchange of common stock for sinking fund debentures, a real estate gain of $5.2 million and a $4.5 million charge for costs associated with permanent shutdown of a smelter in Texas. There also was a $2.8 million charge from sale and liquidation of properties and from early retirement incentives for eligible employees. Net income for the year also included inventory profits of $42.1 million.

Asarco Inc.: Liquidation of LIFO inventories resulted in an increase in pre-tax earnings of $10.6 million in 1982 and $6.3 million in 1981. Proceeds from tax leasing arrangements included in earnings before taxes on income were $9 million and $34 million for 1982 and 1981 respectively. Net for 1981 also included $10 million for recognition of investment tax credits. Pre-tax earnings also include an $11 million charge for estimated cost of closing two metal recycling plants and liquidation of the company's 80 pct interest in a solar collector manufacturer. Extraordinary charge of $35,376,000 cover a reserve for entire carrying value of company's 33 pct interest in Revere Copper and Brass Inc. Company exchanged common stock for debt securities in December 1982; combined effect of extraordinary items was a $35.4 million loss, net of $16.9 million in deferred tax credit. Net applicable to common shares was a $92,743,000 loss in 1982 and a $38,494,000 gain in 1981.

Brush Wellman Inc.: Net earnings from continuing operations were $18,547,000 in 1982 and $19,064,000 in 1981.

Cominco Ltd.: Canadian funds. Extraordinary gain for 1982 reflects sale of oil and gas properties. Extraordinary gain for 1981 reflects sale of interest in Pacific Coast Terminals Co. Ltd.

Engelhard Corp.: Dividend for 1981 reflects annualized rate. Company resulted from May 22, 1981 spinoff from Engelhard Minerals & Chemicals Corp. Retained earnings are stated before FAS #52 adjustments of ($12,007,000) in 1982 and $0 in 1981.

Freeport-McMoRan Inc.: Dividend payout for 1981 includes 14¢ paid before reorganization per share of Freeport-McMoRan common stock issued for Freeport Minerals Co.

Inco Ltd.: Net sales excludes "other income" of $41,010,000 in 1982 and $25,677,000 in 1981. Net from continuing operations were a $204,203,000 net loss in 1982 and net income of $20,467,000 in 1981.

Newmont Mining Corp.: Extraordinary gain of $294.6 million in 1981 represents gain on sale and exchange of St. Joe Minerals Corp. and Conoco Inc. stock net of applicable income taxes of $124.2 million.

Olin Corp.: Special charge of $19 million reflects provision for litigation settlement charged to earnings in fourth quarter, equal to $9.5 million after taxes. Stockholders equity for 1982 includes cumulative foreign exchange adjustment of $10,585,000 resulting from adoption of FAS #52.

Phelps Dodge Corp.: Operating profit is stated before depreciation, depletion, amortization and SGA expenses. Net per common share is after preferred dividend requirement. Invested capital includes redeemable preferred shares.

Phibro-Salomon Inc.: Salomon Brothers became part of the company Oct. 1, 1981 in a business combination accounted for as a purchase. Salomon Brothers had been accounted for by the equity method at year-end 1981 but was consolidated in 1982. Data for 1981 is restated to consolidate the accounts of Salomon Brothers.